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ORIGINAL ARTICLES.

LITIGATION DISEASE A FORM OF NEUROSIS.

Read in the Section on Medical Jurisprudence and Neurology, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May, 1891.

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During the fall of 1881, E. S., aged 60 years, in form tall and slim, temperate habits, previous health always good, a noble specimen of average humanity, occupation farmer and dealer in stock, an expert in this line of business, was on his way to Chicago from W., Iowa. While at a feeding station he was standing in the rear door of the way car looking out, the train was backed to way car with such force as to loosen the upper bunk next the door at his right side; as the bunk fell into its place it struck S. on the right shoulder and arm, and also caught the right hand, crushing one of the fingers; the finger was at this time dressed with a rag at hand by the other stockmen. S. completed his trip to Chicago, nearly two hundred miles, made a satisfactory disposal of his cattle and returned home. The accident and injury being noised about, a lawyer called himself into the case, a doctor was employed, and after a short time suit was brought against the railroad company.

On the morning of March 14, 1882, I was called from breakfast at my home in Galesburg, to the door, to find E. S., who, in the way of introduction, handed me the card of a prominent railroad attorney in Chicago. Inviting S. to breakfast, the above history of his case was learned. The man's appearance was favorable. He seemed to be unable to use his right arm and hand, the arm being carefully carried in a sling, with the hand between a button space in his outer coat. He fed himself with his left hand. Having been injured some six months previous, he had acquired this habit, and had become an adept at feeding himself with his left hand. There was not a line of pain about this man, and his every appearance would indicate to a close observer a strictly honest, conscientious person. He appreciated every courtesy shown him, and after reaching my office, myself and assistant, having ascertained that the finger had never been dressed or redressed since the time of the accident, some six months previous, we suggested to him that it was time to remove the filthy crust about the finger. He acquiesced in this. After getting the finger bare, it was found to have been thoroughly and properly healed for months; thereupon we suggested, as nicely as possible, the shoulder and arm had also recovered. To this suggestion a prompt denial was made, although accompanied with a candid declaration that aside from extreme care used when a change of clothing was necessitated, no attempt was made to use the shoulder or arm since it was first examined and put in a sling some six months previous. S. was afraid of being hurt; he said he was willing for us to examine him; that he wanted to do what was right and fair; that he knew he was injured, permanently injured, but other persons, whom he had no reason to suspect or distrust, had plainly told him there was nothing the matter with him; that he had been sent to me for examination, and was willing to submit to what was right, but he did not propose to be hurt. "I want to be fair and honest with everybody as far as I know," was what he said. We proposed to administer chloroform to him in order to make an examination and to do the necessary manipulation without causing him pain. He sternly refused, and as a reason stated that he had been instructed by his lawyer and by his doctor not to take chloroform for an examination. We spent one hour patiently in getting this man stripped. In the meantime a Drescher faradic battery had been placed on a table conveniently near, and after much persistent childish persuasion we did get him to clasp in each hand an electrode, with the primary current mildly established, then by suddenly turning the switch the secondary current was established, and the withered shoulder and arm responded naturally in a lively manner, and without pain. He was sitting before a large mirror, and as he witnessed himself in his curious gymnastics, he became first frightened, then angered. Matters being brought to a close, time was given him to realize his condition and think about his situation, which resulted in this state-

ment from him: That until then no one could have made him believe there was nothing the matter with himself. He could easily and naturally move his shoulder, arm and hand, and aside from the wasted condition of the muscles, and the palsied appearance, everything was right and had been for months and months. He cried with joy, then he scolded himself in disgust. He said he was willing to do anything to keep from further disgrace. The railroad company had months previously made this man a liberal offer in money for his injury, but suit had been brought in his behalf against the company for a large sum based upon permanent injury. He quietly took the money that had been offered him, and a speculation lawyer was out of a job.

We believed from the first that this man was honest. We afterwards ascertained that he bore a good name, but that he was ignorant outside of his own business, and that he was easily influenced. He was told by *interested* persons that he was injured, permanently injured, and his cupidity overpowered his judgment. No practical attempt had been made to convince him that he was recovered, and that he was not still suffering from his injury, before I saw him. The demonstration that there was no paralysis in the shoulder or arm was so simple and clear that he was overpowered with joyful emotion, simple and natural in its character. The experience and knowledge gained in this case have caused me to follow up and watch other cases of a similar character, cases in which suits have been brought and judgments of large amounts have been paid, and which were, after settlement, followed by a speedy convalescence and total recovery,—cases which previous to settlement had been bed-ridden for a term of years, and during the trial were pronounced by high medical and legal authority in court as being permanently injured, hopelessly so—two cases in which death was predicated within the space of three or four years in the presence of the court, and within the hearing of the *condemned* plaintiff.

I have cited the case of E. S., for the reason that it is typical of this class of cases. It is clean cut and can be identified. The injury was slight and simple, but nevertheless was made the basis of an important suit at law to recover heavy damages for an alleged permanent injury. It is the small and simple things, neglected in this world, that cause most of our trouble. I believe that such persons can be said to be suffering from "*litigation disease;*" that this condition can be truthfully stated as a form of neurosis in which fright, or shock, temporary disturbance from business, and many other trivial things, naturally figures, which under other circumstances would be unaccountable, and that in all of these cases the proper course to pursue must be kind attention properly administered, and in all cases where the question of liability for damages is conceded, a prompt and liberal payment of money on the part of the corporation or railroad company should be made—a functional nervous disease will then be rapidly and permanently cured; that it is safe and humane to look upon these cases as a form of functional nervous disease, meaning of course the class of cases as illustrated by E. S. I never had the heart to style S. as a malingerer. I do not believe he knew any better. He was told by *interested* persons that he was injured, permanently injured, and that the railroad company was liable, and could be made to pay a large sum of money—all of which he believed; and the part he most believed and knew to be true was that he was injured, permanently injured; and here is where I think I am warranted in bringing this paper before you. It is to call your attention to the peculiar condition of a person who has been in an accident and who was at that time injured, and wherein is conceded the payment of money to him for the damage done him. We all know that a functional nervous disease can be made organic, lasting, permanent, and it is certainly hard, impossible sometimes to demonstrate that such a person has not received a permanent injury; that he is not suffering from an organic disease caused by his injury, incurable in its character, and possibly progressive as regards bad results or death. Particularly is this the case in *neglected* cases that are solicited by *interested* persons, and placed in litigation; cases in which it is certainly easier and more natural to exaggerate than it is to simplify or improve. I never knew but one man to get better, to improve on a line of recovery while his case was being litigated, and I expect to have to look a long time before I find another. It is out of the line of ordinary humanity. It is a fact that such cases are knowingly or unknowingly terribly abused; that justice relative to them is travestied. These cases are put in court, and verdicts for enormous sums are obtained and paid. Permanent injury is alleged and proven to the satisfaction of the court and jury; death is even predicated openly in court, and with no respect paid to ordinary rules of medical practice, and after all this has been so skillfully done such cases have been known to recover, rapidly recover. It is a fact that this is the rule, and not the exception in this class of cases.

Railroad companies, corporations and cities in this country are paying millions of dollars to such persons. The Government is doing the same. The advantage and the gain is with all such. They have nothing to lose. If the machinery to run such a case in one city is not complete, the patient is packed off to another city. Some noted specialist in nervous diseases is reached through his cupidity. No dishonesty

can be attached to him. The electric battery is called into use. *The reaction of degeneration* is found. Organic disease is supposed, and *claimed to be proven;* actual cautery even, is applied along and over the spine, and this, too, in a case that bears every aspect that the patient may succumb under this terrible treatment, and the wonder is that he did not. I am no expert lawyer. I am no expert doctor, not even a medical professor, but fortunately or unfortunately it has been my lot to witness just such cases and to see just such procedures as herein detailed, and I am here to cry HALT. I never have seen nor do I expect to see a case of pronounced legitimate injury in court and under trial for money to be paid, wherein the question of liability has been concerned. This is a hard statement, but the facts are prolific, extremely abundant, existing all through this country, that bear me out in the statement. I find my sympathy with this non-malingering class of cases. They are certainly *injured* persons in more ways than one. They are practically suffering from functional nervous disease; I have styled it "litigation disease," a form of neurosis, same as we call certain nervous conditions hysteria, and other functional nervous conditions neurasthenia. These persons are so conditioned as to be beyond self-control. They have, in a *hasty* and *unpremeditated* manner, *signed* away their liberty, and this in a free country. They are being fitted for a legal race, in which they are bound to win, regardless of all professional honor and integrity. Whether as yet this practice can strictly be called fraudulent, remains in some cases to be seen, to be found out. The results certainly bear out the conviction that somebody was terribly mistaken.

In discussion, Dr. Clevenger said:

Mr. Chairman and Gentlemen: The scientific aspects of Erichson's disease are obscured, and all that concerns the matter of spinal concussion is wrangled over for the very simple reason that there is money involved. I may say it concerns contention over millions of dollars. Were typhoid fever, or any similar complaint, dragged into court and made the basis of a money issue, there would instantly arise a host of interested parties claiming that there was no such disease. Where the carrion is, the buzzards will gather, and lawyers seek out witnesses who best serve their particular side. They do not want the judicial-minded physician (unless they have a very strong case), and both for plaintiff and defendant we too often see (*not always, but too often*) the buzzard doctor swearing sturdily to anything, almost, that his attorney requires. By a process of elimination, the unpurchaseable physician (and there is plenty of him) is less often seen in court, and the buzzardy swarms are contemptuously regarded by juries, judges and lawyers as constituting "experts."

But the expert standard is gradually being raised, and it suffices no longer that the witness may ventilate himself of an opinion; he must now give reasons for his belief.

The bombastic surgical bluffer who pooh poohs at the lost leg, and congratulates the victim upon his freedom from corns and bunions, has had his day, as well as the calamity doctor, who rears mountains out of molehills.

There is a golden mean in this matter that can be arrived at by a little study. Dr. Rohr recently called me to the case of Fred Schultz, who two years previously had fallen from a stool backward upon a pile of bricks, and suffered all the characteristics of Erichson's disease, finally dying therefrom, notwithstanding that there was no damage claim, and his ignorant neighbors had declared that he was only lazy, and wanted to escape work by pretending to be sick. On the other hand, at Frankfort, Indiana, the case of George E. Miller against the Monon road ended in establishing the fact that he had filed a pension claim just one month before the wreck, and his pension application contained the sworn statement of a spinal injury sustained in 1864, disabling him from earning a living, while his declaration against the railroad alleged the same thing as resulting from the railway accident, and that previous thereto he had been strong and healthy. As both these statements were judicial affidavits, there would be considerable difficulty in determining which should be believed.

Dr. Watson's experiments, as stated by himself in his recent publication, do not justify the deductions he makes from them; in fact, there is little connection between his facts and inferences, and, further, the experiments themselves bear very little upon the subject.

In last year's Surgical Section, Dr. Watson took occasion to speak of the alienist as cultivating a "pseudo science." So ill-advised an assertion convicts him of not possessing the "mental breadth" he has just mentioned as necessary in the investigation of spinal concussion.

Dr. Spitzka recently called my attention to an article by Hans Ichmans in *Virchow's Archiv*, p. 326, vol. 122, strongly sustaining my claim of tangible results in Erichson's disease, and time does not permit me to more than allude to Oppenheim's statement (*Neurolog. Centralblatt*, Aug. 15, 1889): "In the majority of cases the symptoms unite to form a type of disease which cannot, in the present state of our knowledge, be mistaken, from its significance, its clearness, its objective character, and the sharpness with which it is defined. In the policlinic where I examine such cases before a large audience of students and physicians, in almost three-quarters of the cases I develop the diagnosis in a convincing

manner on the first examination, so that I often hear the question, 'How is it possible that such diseases should be regarded as simulated?'"

Dr. King said that he would like to know what constituted spinal concussion.

Dr. Hughes requested Dr. King to tell us what was the lesion in cerebral concussion, and we might be able to answer his question as to spinal concussion.

Dr. Lydston asked Dr. King if he believed in surgical shock.

Dr. King said that he did.

Dr. Lydston then asked for its pathology.

Dr. King: Hæmorrhage.

Dr. Clevenger: What organs are affected?

Dr. King: The whole man.

Dr. Clevenger: So is the entire man affected in spinal concussion.

Dr. G. Frank Lydston said:

Too much stress has been laid upon the nomenclature of spinal, and especially railroad spinal injuries. As the term spinal concussion is generally applied it is not remarkable that there should exist so many conflicting opinions. Concussion of the spine as an entity does not exist, neither in my opinion does concussion of the brain. But that certain varying symptoms dependent on widely different pathological conditions may result from a jarring of the cerebro-spinal axis, must, I think, be admitted.

I have this to say of the theory of molecular vibration as a cause of the symptoms following spinal injuries. The most rational theory of nervous conduction yet advanced is that of molecular motion now if we may except this view we must believe that disturbances of the normal molecular arrangement of the nervous structures will almost necessarily produce aberration of nervous function and, if these disturbances be severe, it is rational to expect permanent morbid effects in a certain number of cases.

The argument has been advanced here to-day, that "spinal concussion" has not occurred unless there be anatomical changes in the cord. This is begging the question. Must we hit our patients in the head with an ax so that we may examine the cord for anatomical lesions? Is it necessary to see the ileum in typhoid in order to believe in the existence of such a fever? Is tetanus none the less real because of its obscure and scant morbid anatomy? Must we throw every functional disease out of court because there is no morbid anatomy? No, and yet that is what the railway surgeon proposes to do with spinal concussion. Accept the view that concussion is a physical influence upon the spinal cord, which may produce a varying degree of morbid phenomena according to the severity of the jarring, and the subject will be divested of much of its confusion. It is to be remembered that the tissue protaplasm of the cerebro spinal axis may be acted upon by jars in very much the same manner as the amœba by an electrical discharge. It is probable that the cause of death by lightning or electric current is a severe concussion of the nerve tissue, inhibiting the energy of the protoplasm of the nerve cells.

Dr. Manley speaks of the manner in which the spinal fluid acts as a water bed in the protection of the spine. I fancy this water bed does not stand the criminal who is hung in good stead, it certainly does not completely defend the spine from jars. Indeed I fancy there is more of compensation than design in its presence in the spinal canal—its presence is due to the necessity for filling the vacuum incidental to the loose and mobile texture of the envelopments of the cord. It is possible that it favors rather than otherwise the transmission of jars to the cord.

There is one question that I should like to ask of those who do not believe in the theory of spinal concussion. Can you tell me the precise condition in surgical shock? Can you determine in fatal cases that the patient died of shock, by the morbid anatomy present? I fancy you cannot, yet fatal cases do occur, and short of a fatal result we meet with not a few cases of chronic invalidism. The assertion that a person who has suffered from a railroad injury is "never the same man again" is not without foundation. We cannot throw all the neuroses in which there are no anatomical lesions, out of court, and yet, that is what we are asked to do in the case of railway spine, or Erichson's disease.

Laying all theory aside, the practitioner is confronted with many cases in which the settlement of damages does not cure the case, and many in which they even get worse after settlement. There are many frauds perpetrated against railroads it is true, but in the aggregate I think the roads get the best of the bargain.

Both sides must be fair and charitable. A few isolated instances of surgeons who sell their souls to railroad corporations do not prove all railroad surgeons to be knaves; a few mistakes should not stamp all of them as ignoramuses. On the other hand, an occasional fraud does not disprove the honesty of a large class of railway litigants. Let us lay personalities and recriminations aside and seek for the truth in these cases.

In my own experience I have seen a case of lateral curvature which I believe to have been due to a concussion of the spine from a fall upon the buttocks. This developed within a few weeks after the injury and was attended by spinal tenderness, neuralgia, etc. In another case paralysis of the serratus magnus seemed unquestionably to be due to spinal concussion. Dr. Moyer is now treating one of my cases in which most profound nervous symptoms have developed—without paralysis—chiefly since her case was satisfactorily settled by the railroad.

PARETIC DEMENTIA AND LIFE INSURANCE.

Read in the Section of Medical Jurisprudence and Neurology, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May, 1891.

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The increase of paretic dementia among civilized nations has created many important legal problems for solution. The present question has puzzled the solicitors of more than one insurance company. In a case which came under my own observation, a paretic dement insured his life. A month later he was adjudged insane and sent to the Cook County insane hospital, of which I was then Superintendent. Eight months later he died in an apoplectiform attack.

Dr. S. V. Clevenger has had under care a commercial traveler addicted to sexual excess and luetic, who, precedent to May 6, 1889, had spinal symptoms of paretic dementia, following which came a condition of emotional exaltation. His life was insured precedent to the spinal symptoms for $5,000. In a period of emotional exaltation he desired to increase this to $20,000, which was done in January, 1890. June 4, 1890, he died in an apoplectiform attack. The solicitors of the company wrote to Dr. Clevenger to know if the patient *knew* he was suffering from insanity when he consulted the doctor. After such a bright attempt to manufacture evidence of fraud, it is not surprising that the company had to pay the full amount.

Legrand du Saulle[1] reports the following case: Dr. Blank, a physician well known in science, had had for more than nine years an insurance of $20,000 on his life. He suddenly gave unequivocal evidence of mental impairment, went and came rapidly, wrote and spoke a great deal. He had an exaggerated opinion of his labors, vaunted his success in practice, and boasted of his professional ability. In one of his walks he accidentally met the President of the company in which his life was insured. After a long conversation, Dr. Blank said that his life was insured for an insignificant sum, and that he had resolved to increase the amount to $100,000. He was referred to the proper authorities, who consented. The policy was prepared, and all that was needed to complete the assurance was a receipt for the same. The agent, who was ready to deliver the policy on the signature of the receipt, suddenly noticed, just as the doctor was about to sign this, that the latter talked rather freely and loudly. Suspecting intoxication, he put off delivery of the policy until Dr. Blank should become sober, claiming to have forgotten some important formality. The following day the physician was sent to an hospital for the insane, where he died in six months from paretic dementia. The company paid the $20,000 to his widow, and esteemed itself happy that it did not have to pay the $100,000 for which the husband had desired, in a fit of pathological temerity, to assure his life.

The intellectual powers of a paretic dement are such as make him an easy prey to the blandishments of any "sharp" insurance agent who would believe him, from his apparently excellent health, to be a good risk. Once started in the life insurance direction, the paretic dement might keep on, like Legrand du Saulle's patient, increasing the insurance on the life of the valuable citizen he believes himself to be, since paretics have a tendency to adopt and extend ideas derived from others, as shown by the case of the paretic dement cited by Spitzka, who, saved by his wife from a paretic suicide, proposed to erect a monument to her for saving the life of so valuable a citizen. It is curious how often this psychosis escapes observation by the non-alienist physician and laymen, when compared with the ease with which it is diagnosed by even asylum attendants familiar with it. In two cases which occurred in New York State, two cashiers of banks who had been paretic dements for at least two years, nearly brought the bank to a condition of insolvency by simple lack of attention to business, but their mental condition had not been at all suspected by their business associates. A Chicago saloon keeper with a paretic delusion of having inherited $2,000,000, was interviewed by the reporters of every paper in the city, by none of whom was his mental condition suspected until his friends took measures to have him placed under treatment in the county hospital for the insane. There is, therefore, nothing antagonistic to the existence of paretic dementia in the fact that a man insures his life for a large amount, and his mental condition escapes observation from the business men of the company. It may, however, be urged that the medical officers of the companies would detect the psychosis. He who knows how these medical officers are chosen, either from relatives or connections of the officials of the companies, or by agents who tell the physician that "he must not be too strict," or for political reasons to influence State Legislatures, from medical politicians (who indulge in "graveyard" insurance dodges in which they get caught sometimes, but not as a rule), will scoff at the idea that men like these, who neither know nor care to learn anything of psychiatry, could be of value in the detection of insanity.

The same point is still more strongly illustrated by another case cited by Legrand du Saulle: Two brothers presented themselves at the office of a French alienist. The elder brother entered the office first, and asked the alienist to examine with care the patient brought him. "There

[1] Gaz. des Hôpitaux, 1884.

seems to be nothing the matter with my brother," said he, "but he is no longer the same." The physician, after a long examination, said: "Your brother is in the initial stages of paretic dementia." Explanations were then given, and the prophecy made that the patient would die in three or four years. The following day an insurance of $20,000 was placed on the life of the patient. Three years after, the brother pocketed the amount. In Germany, a medical officer of a railway corporation claimed that symptoms of paretic dementia presented by a 43-year old man were only changes due to old age.

Hanot[2] calls attention to the dangers to which life insurance companies are exposed from this class of patients, who, as already stated, escape the diagnostic ability of the average insurance company's physician, who is worthless in the detection of this psychosis.

Is the insurance effected on the life of a paretic dement, by himself or his relatives, in good faith, binding on the company making such assurance? The Supreme Court of Iowa has decided that persons of unsound mind are to be held bound by an executed contract or conveyance where the transaction is fair and reasonable, and in the ordinary course of business, and where the mental condition of the party is unknown to the second part, and the parties cannot be placed *in status quo ante*. The converse of this necessarily follows. A paretic dement cannot be guilty of fraud, for fraud implies a knowledge of the true state of things, and of such knowledge the paretic dement is destitute. A paretic dement effects an assurance on his life because of his psychosis. If contracts with the insane, under the circumstances mentioned by the Iowa decision, are binding, then his policies are binding on the company. If the policies were binding on the companies, no suicide by him could vitiate them. It may be admitted that, even assuming the truth of all the circumstances, it was an injustice to burden the companies with the results of the actions of an insane man. With the consequences of a law a judge has nothing to do; his duty is to declare what that law is, and the same holds good of a scientist and scientific truth. The companies were themselves to blame for accepting such a risk—a risk offered by the would-be policy holder in good faith. It may seem hard on the companies, but it would also be hard on the family of paretic dements if they should be deprived of the provision made for them. The life insurance companies use all means to detect fraud and to ascertain the value of risks. If such means prove insufficient, not through fraud of the policy holder, but through the incapacity of the company's agents, the company should be held responsible.

Another aspect of the case presents itself. If a paretic dement insured his life, and then, with a paretic idea of smartness, committed suicide to compel the company to suffer for some imagined affront, or with the vague idea of making money for his friends, would this act vitiate his policy? Under the Iowa decision, I believe not. Legally, I believe the policy could not be declared void, however seemingly unjust its non-voidance, or rather the full requirement of all its provisions, under the circumstances, would be. The question simply resolves itself into this: Can a contract which *per se* involves an element of risk, all means of diminishing which risk are supposed to be taken by one of the persons making the contract, be regarded as void because, without fraud on the part of the other party to the contract, the risk proves greater than was anticipated? Life insurance contracts are based on the theory that the company ascertain the exact condition as regards disease. If the insured have an ordinary physical disease unknown to himself and the examiner, and die from such disease, the company is held bound to pay the amount of the policy. It would seem that the same rule should hold good in the case of a paretic dement. Though stockholders suffer unjustly in case of paretic dements from the inventive stupidity of agents and medical officers, yet their own negligence has been the cause of this loss. In the case of the two brothers cited by Legrande du Saulle, fraudulent intent was clearly evident, and probably that policy could have been set aside.

[2] Annales d'Hygiene, 1884.

MEDICO-LEGAL INVESTIGATION OF DEATHS BY VIOLENCE IN MASSACHUSETTS.

Read before the Section on Medical Jurisprudence and Neurology at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May, 1891.

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In 1877 the Legislature of Massachusetts passed "An Act to abolish the office of coroner and to provide for medical examinations and inquests in cases of death by violence." By the terms of this act the county commissioners in each county, except that of Suffolk, were called upon to "divide their several counties into suitable districts for the appointment of one medical examiner in each district;" and such examiner, while appointed from a district, has the power to exercise his function in any part of the county of which his district is a portion. In practice, however, an examiner does not act in the district of another except in case of absence or disability of the latter. Examiners hold office for seven years and are appointed by the governor by and with the advice of the council.

The thirteen counties were divided into 68

districts, according to the distribution of centres of population in each county. The usual number of districts is four, but some counties have more and some less than that number. Each examiner is sworn and gives bonds with sureties in the sum of $5,000 to the treasurer of the county conditioned for the faithful performance of the duties of his office. Every medical examiner is required annually, on or before the first day of March, to transmit to the secretary of the commonwealth certified copies of the records of all deaths which have occurred during the previous year, the cause and manner of which he has officially investigated. For this purpose blank books for records and blank forms for returns are supplied to each examiner. A small fee is allowed and paid by the commonwealth for these returns as is done for the returns of births. These returns are bound and indexed, and preserved for reference, and from them are prepared and published by the secretary of the commonwealth such tabular results as will render them of practical utility.

The work of the examiner may be best studied under the following heads: 1. Notification; 2. View; 3. Autopsy; 4. Records; 5. Fees.

1. Notification. Examinations under this law are made "upon the view of the dead bodies of such persons only as are supposed to have come to their death by violence," and "whenever a medical examiner has notice that there has been found or is lying in his county, the dead body of a person who is supposed to have come to his death by violence, he shall forthwith repair to the place where such body lies and take charge of the same."

There is nothing in the law to indicate what shall constitute official notice, nor to show who has authority to give such notice. According to the theory and practice, any responsible person has such authority, and the intent of the law, it is to be presumed, was to allow the broadest liberty in the notification. As a matter of fact the calls usually come through the police in cities, the selectmen or their representatives in towns, the officers of corporations, the undertakers, some member of the family of the deceased, the person finding a body, or possibly, though not frequently, notice may be given by some neighbor or enemy even of the deceased, who is inclined to be suspicious or desirous of settling some old score by instituting investigation. The last motive is rarely successful, since almost without exception the services of the examiner are welcomed by the unfortunate family.

The question, shall an examiner ever refuse to make a view, has been discussed by the examiners, and the general opinion is that he should not refuse, unless there has been a misapprehension of the condition under which he is required to exercise his functions. It is not sufficient to say that one died without medical attendance, but the idea of suspected violence must enter into the case. The boards of health of cities and towns are authorized to give certificates of the cause of death in cases of uncertified deaths, not suspected of violence. Not infrequently the examiner is consulted by undertakers, sometimes by town officers, to learn whether a certain dead body should be the subject of official view, and the answer turns entirely upon the question of the possibility of any one supposing that the death may have been caused by violence. If there be such a reasonable possibility, it is undoubtedly a case for view.

2. View. Having been notified, the examiner is required by law forthwith to repair to the place where the body lies and to take charge of the same. He now makes a careful view of the body, with such accuracy as to enable him to say whether or not the body shows any marks of violence, and especially any marks sufficient to indicate the cause of death. For this purpose the usual custom is to have the body entirely naked and to make careful inspection of every part. He also makes personal inquiry into the cause and manner of the death, if any one can be found who can give information. Under some circumstances a careful investigation of the surroundings of the body becomes important evidence in the investigation. All the facts learned in this search are to be accurately recorded.

If upon this view and inquiry the examiner is convinced that the death was not caused by violence, he will deliver the custody of the body to the friends of the deceased, if there be such. In case the body is not claimed, or is unidentified, it is to be kept in his custody for forty-eight hours and then delivered to the overseers of the poor of the city or town wherein it is found lying. In case the body is not identified, a careful description of the deceased is to be made. The examiner next is to certify to the clerk or registrar of deaths the name or description of the deceased, together with cause and manner by and in which he came to his death. And here the investigation may end.

If, on the other hand, the examiner is convinced that the death was caused by violence, and he is able to determine without further examination, the cause and manner of death, he will certify as before to the registrar, and also notify the district attorney and a justice of the district, police or municipal court for the district or city in which the body lies, that there has been within the district a death by violence in the meaning of the law.

3. Autopsy. If the examiner is unable to determine satisfactorily the cause of death without autopsy, and he deems a further examination necessary, he shall so report to the district attorney or to the mayor or to the selectmen of the

district, city or town where such body lies. Any of these officers may authorize him in writing to make an autopsy, but he can make no autopsy officially without such authority. Before proceeding to make an autopsy he shall employ two or more discreet persons, one or more of whom may be physicians, and he shall first call their attention to the position and appearance of the body, and in their presence he shall make an autopsy of sufficient thoroughness to fully establish the cause of death, or to establish the fact that the cause can not be learned by autopsy. The examiner, if he deems it necessary, may employ a chemist to aid in the examination of the body, or of substances supposed to have caused or contributed to the death. The examiner, or a clerk whom he may employ, shall reduce to writing at the time of the autopsy any fact or circumstance tending to show the condition of the body and the cause and manner of death, together with the names and addresses of the witnesses, which record the examiner shall subscribe, and which is known as the record of the autopsy. A duly attested copy of the record is filed with the district attorney, and another with the justice of the district court, together with a certificate of a death by violence above described.

If, however, an examiner is of the opinion that a death was not caused by violence, and the district attorney or attorney general is of a contrary opinion, either the district attorney or the attorney general may, notwithstanding such an opinion, direct an inquest to be held in accordance with the provisions of the law, at which inquest he or some person designated by him shall be present and examine all the witnesses.

Since the action and opinion of the medical examiner turns wholly upon the question of violence, it becomes very desirable that the term violence be exactly defined, and yet, as in the case of notification, the law not only does not define it, but seems to use it in its broadest sense, if not indeed in differing senses. But since it is the object of the investigation to learn if any other person than the deceased has been either directly or indirectly causative of the death, it is fair to consider that the violence, which is to be officially reported, is a violence that may have been contributed to by the act or by the neglect of another. All cases of death by accident upon a railroad are, by special provision, to be reported for inquest, and the district attorney or attorney general may, if he deem it necessary or expedient, direct an inquest to be held in the case of any other casualty from which the death of a person results.

5. Fees. In the county of Suffolk, the examiners are paid annual salaries for all services performed. In all other parts of the State the examiners are paid fees as follows: For a view without autopsy, five dollars; for a view and autopsy, thirty dollars; and for travel, at the rate of ten cents a mile to and from the place of view. The bills for the services are rendered quarterly to the county commissioners, who certify their correctness, when the fees are paid by the county treasurer. In case of autopsy, however, there must accompany the bill the certificate of the mayor or selectmen who authorized the autopsy, and a statement from the district attorney certifying that the autopsy was in his opinion necessary. In order to enable the district attorney to make this certificate, the examiner is required in every such case to file with the attorney together with his report of the autopsy an account of his view and personal inquiry in the case, and shall certify that in his opinion, the cause and manner of death could not be ascertained by view and inquiry, and that an autopsy was necessary for that purpose.

At this point the official relation of the examiner as such ceases, though he may or may not be employed as a witness at the inquest, or at the subsequent trial, if one follows.

Inquest. In case the examiner has notified, as above described, the justice of the district court that there has been a death by violence, the justice is required to hold an inquest, and is allowed no discretion in the matter except as to time and place of such inquest. At this hearing such witnesses as have been found to have any knowledge of the facts are summoned to testify, and the district attorney or some person designated by him may attend the inquest and examine all witnesses. In practice, the judge himself usually examines the witnesses.

After hearing the testimony the justice is required to draw up and sign a report in which he shall certify when, where, and by what means the person deceased came to his death; and if it appears that his death resulted wholly or in part from the unlawful act of any other person or persons, he shall further state the name or names of such person or persons, if known to him, and he shall file such report with the records of the superior court in the county wherein the inquest is held. The law further allows the justice to bind over such witnesses as he may think best, and requires him to take the necessary steps for the apprehension of any person or persons charged in his report with the commission of an offense.

Thus I have endeavored to describe to you the method of a medico-legal investigation of deaths by violence that has been practiced in Massachusetts since the abolition of the office of coroner, and naturally the question may arise, what has been gained by this change? In answer I will call your attention to a few of the points of gain. First, the expense, which to many minds is of first importance in matters of public concern, has been

diminished about one-third. Second, promptness in action and exactness in investigation have been accomplished. Third, all the facts of the case from the first discovery of the body to the finding of the justice are matters of accurate record and are material as evidence in the higher courts in case a trial follows the inquest. Fourth, the duties are now so divided that the man of medical training investigates so much of the case and only so much as has to do with the medical question of the cause and manner of the death, while the man of legal training settles the question of responsibility and determines whether or not a crime has been committed, what the nature of that crime, and, if possible, who is the suspected criminal. Fifth, the records in the hands of the secretary of the commonwealth constitute a valuable body of observed facts that may become of great value to the student of legal medicine. Last, the association of Medical Examiners, constituting the Massachusetts Medico Legal Society, has stimulated each examiner to keep himself well-informed and as far as possible prepared for any case that may fall to his lot. And in general, the diffusion through the State of a number of physicians specially interested in medico-legal research has tended to call the attention of physicians to that branch of medical study, and has had an influence to improve the grade of medical testimony in the courts of the commonwealth.

ETHER INEBRIETY.

Read in the Section of Medical Jurisprudence and Neurology, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May, 1891.

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PRESIDENT SOCIETY FOR THE STUDY OF INEBRIETY; CHAIRMAN BRITISH MEDICAL ASSOCIATION, INEBRIATES' LEGISLATION COMMITTEE; CONSULTING PHYSICIAN, DALRYMPLE HOME.

Ireland has in the nineteenth century presented to the world two interesting and remarkable series of inebrio-psychological phenomena. In 1838, a simple-minded Roman Catholic priest, Father Mathew, adopted and began to advocate the practice of abstinence from all intoxicating drinks. So amazing was the impression made by him that, in three years, the roll of the tee-total pledges which he had administered exceeded 5,000,000, in Ireland, in addition to large numbers in England, Scotland and America. The reality of this epidemic of temperance was attested by the statement of the Chief Secretary, in 1840, that "the duties of the military and police in Ireland are now almost entirely confined to keeping the ground clear for the operation of Father Mathew." Though this great wave of sobriety has gradually receded, till now the extent of drinking in Erin is simply terrible, I am every now and again meeting professionally with sons and daughters of Hibernia, who glory in their steadfastness to the pledge which they so long ago took at the hands of the Irish apostle of temperance. An accurate study of this unique crusade would, in psychological results, amply repay the labors of any earnest student of mental science.

Curious to relate, the other series of inebrio-psychological phenomena is an experience in an opposite direction—an experiment, so to speak, not, as in the former case, in temperance, but in intemperance.

ETHER INEBRIETY.

The disease of inebriety or narcomania (a mania for intoxication by any kind of narcotic or anæsthetic), may, besides other phases, assume a form correspondent to the particular inebriating substance. It may, therefore, be interesting to glance at the origin and growth of this new mode of inebriate indulgence, as this is the first opportunity afforded to us of observing the rise and progress of such a process in a community.

RISE AND PROGRESS IN IRELAND.

The centre from which ether drinking spread was the town of Draperstown (with a population of some 300), in the southern part of the County of Londonderry. Before Father Mathew's abstinence propaganda, ether drinking was there unknown. Between 1842 and 1845 a local medical practitioner, in response to a request from a few newly-pledged abstaining converts for something the taking of which would not violate their vow, gave them a drachm of ether in water. So far as I can ascertain, this was the *fons et origo mali*. A desire for more frequent doses grew upon the ether drinkers, and the practice spread in and around Draperstown till there was a shop for the sale of ether, in one town, to every twenty-three of the population. In the session of 1855–6, an Act was passed by the British Legislature allowing spirits of wine to be used duty-free in arts and manufactures, provided it was made nasty as a drink (which the Government, in their innocence, supposed would prevent people from drinking it) by the addition of a minimum $\frac{1}{9}$ of methylated spirit. As ether prepared in this way is much cheaper than ordinary sulphuric ether, this cheap production of "methylated ether" caused the consumption to increase "by leaps and bounds." The present ether area was, from its mountainous features, a central locality for the illicit distillation of whisky. Owing to the activity of the police and the making of roads, this illicit traffic was effectually stamped out. The disappointed cheap whisky drinkers found a cheap unintoxicant in ether. Mr. H. N. Draper first called attention to Irish ether drinking in 1877 (*Medical Press and Circular*, May 30), followed

by Dr. B. W. Richardson about 1879, and by Mr. Ernest Hart in 1890.

AREA OF DISTRIBUTION.

Ether drinking was in a year or so gradually introduced from Draperstown into the neighboring town of Maghera, and soon extended its sway till it occupied an area of somewhere about 295 square miles, with a population of nearly 79,000 souls. This area may, in general terms, be said to comprise the mountainous districts, especially of Derry and Tyrone, and to some extent, of Armagh and Antrim. Cases of ether intoxication have occurred in Dublin and other parts of Ireland, in Glasgow (Scotland), in Lincolnshire in England, and I have seen several in London.

THE ETHER DRINKERS.

All the cases which I have seen in England have been persons of education and refinement, who had first been alcoholic inebriates and gradually developed into devotees of these twin poisons. Nearly all of these English cases have been females, the only males having been members of the medical profession. In Ireland, women assert the equality of the sexes by taking their fair share of this form of intemperance. Small farmers and agricultural laborers make up the bulk of the Irish ether tipplers. Workmen, too, are well to the front. But the practice is by no means confined to these classes. Members of the learned professions have their representatives. Etherists are to be found at almost all ages from puberty onwards. Sturdy Irish lads and beautiful Irish lasses, brimful of Hibernian wit, as well as "60-year olds" of both sexes, are slaves to ether drunkenness. The mother may be seen with her daughters, and maybe a neighboring Irishwoman or two, at a friendly ether "bee." The habit has become so general that small shopkeepers treat the children who have been sent to purchase some article, with a small dose of ether, and schoolmasters have detected ether on the breaths of children from 10 to 14 (or even younger), on their arrival at school. Some critics have endeavored to lay the blame of this new development of inebriety on the Roman Catholic religion. Nothing could be more unwarrantable and unfair. The disease has spread principally among Roman Catholics, simply because this is the creed of the greater part of the population. One Protestant village, Tobermore, is as bad as any other place. All my cases have been Protestants.

QUANTITY TAKEN.

The amount swallowed at a draught varies mainly with the stage of education in ether consumption. A novice will find a drachm (a teaspoonful) sufficient. Gradully the wished for effect demands an increased dose, till ¼ of an oz. may in time become the ordinary "peg" of an accomplished drinker, to use the phraseology of Anglo-Indians. These are average quantities of a so called "moderate" drinker. More "seasoned casks" have a higher capacity, many toping off half a wineglassful as unconcernedly as an average Englishman would drink a glass of claret, or an average American a glass of champagne.

The amount of ether consumed in a day is often remarkable. A confirmed ether inebriate will take a much larger dose than any I have just enumerated, and repeat the dose three, four, five, or even six times in the twenty-four hours, when "on the spree." Indeed, in some cases, half a pint has been the regular daily allowance of constant (or habitual) inebriates. In England I have known an ether inebriate use a pint of ether by inhalation every day. In Ireland, many persons keep themselves intoxicated pretty well during the day for the sum of sixpence—taking two pennyworth at 10 o'clock, 1 o'clock and 4 o'clock. What a paradise for drunkards! Drunk three times a day for 13 cents!

HOW TAKEN.

In England, in my own practice, the majority of ether drinkers have inhaled the poison. In Ireland the universal method is drinking. By the latter mode the ether is taken "neat." Owing to an idea that ether, like whisky or brandy, should be drunk diluted with water to sheathe the virulence of the poison, the uninitiated and ignorant Englishman, when in Ireland, sometimes mixes his ether "peg" with water, "just to try the stuff, you know." Ludicrous failure awaits him, for, unlike ardent spirits, ether is but sparingly soluble in water. The pungency of ether, except to those who have "finished their education," generally calls for an "overture" to the "act" of ether swallowing. Scene I.—The mouth is washed out with cold water. Scene II.—A draught of cold water is drunk. Scene III.—The ether is swallowed "neat." Scene IV.—The performance closes with a second and final drink of cold water. The preliminary draughts of water are to cool the mouth and throat, and the post ether draught is "to keep the ether from rising." The washing of the mouth is soon omitted. By and by the preliminary draught of water follows the same fate, the ether dose and the succeeding draught of water being the commonest method. As his education advances, the etherist dispenses with water altogether. He may for a while, especially when drinking an unusually large dose, hold his nose with one hand, but probably ends by despising all precautionary safeguards, and by simply drinking his mouthful of ether at a gulp.

WHAT IS TAKEN.

Ether purus of the British Pharmacopœia was

at one time affected by my inebriate patients. This pure ether $(C_2H_5)_2O$, which is free from alcohol and water, has been in my hands the only ether preparation which has proved to be without complicatory drawbacks when used as an anæsthetic (Brit. Pharmacopœia, 720; U. S., 725). *Ether* of the B. P. (sulphuric ether) was, however, the article generally used for purposes of intoxication. It contains 8 per cent. of alcohol and water with 92 per cent. of *ether purus*, and is soluble in all proportions with rectified spirit, but in only 1 in 10 with water. The specific gravity should be (B. P.) .735; (U. S.) .750. It is a swift, potent, diffusible stimulant, narcotic, anæsthetic and antispasmodic, of great value in medicine. It has a strong, penetrating odor, is sweetish, hot, burning and pungent to the palate.

To America the whole world owes a deep debt of gratitude for the introduction of ether as an anæsthetic by Dr. Morton, in Boston, in 1846, and any saddening misuse of this grand mode of alleviating human suffering ought not to lessen our appreciation of this splendid boon to humanity.

By the Act 18 and 19 Vict., c. 37 (1855-6) the use of spirit of wine, free of duty, was permitted in the arts and manufactures, on the addition of a minimum of $\frac{1}{9}$ of wood-naphtha (methylic alcohol or spirit from the destructive distillation of wood, after rectification; specific gravity .803 B. P.), with a view to prevent this fouled liquid from being drunk as a beverage. Ether prepared from this fouled duty-free spirit is, of course, much cheaper than ether prepared from spirit of wine on which duty has to be paid. The intention, however, was defeated, inasmuch as in the process of manufacture of ether from the fouled spirit, the fouling ingredients (*i. e.*, the methyl products) are destroyed. Thus, contrary to the general belief in what is commonly called "methylated ether" being as nasty as the methylated spirit which is used for lamps and for polishing purposes, "methylated ether" is to the taste hardly discernible from pure sulphuric ether. This so-called "methylated ether" is practically undistinguishable from *ether* (B. P.) at the specific gravity of .717, *i. e.*, when purified. At any other specific gravity, an odor is given off after evaporation. Practically, one cannot discriminate between the ethylic and methylic productions.

Price.—The ether thus prepared from the duty-free spirit (sp. vin. rect. *cum* methylic alcohol), can be produced at as low as one-seventh of the cost of ether prepared from the duty-paid spirit, the latter being bought wholesale at $1.25 per lb., and the former at as low as 16 cents.

HOW PROCURED.

Ether is imported mostly from England, partly from Scotland, by larger chemists and druggists in the principal towns of Cookstown, Magherafelt, and Maghera. The large dealers supply small shopkeepers, and also cottagers, who sell in "draughts" (rather less than 2 teaspoonfuls) for one penny. The small shopkeepers also supply the hawkers (who are very often women), who attend fairs and other festive gatherings to dispense the "draughts" of the liquid poison. These "draughts" are also to be had from the surgeries of some medical practitioners, and in cottages or ether shebeen, where the cottager keeps a pig or two, and sells ether, the country people frequently giving potatoes, meal, or other produce in exchange. The hawkers carry about a bottle of ether, and do not scruple at selling to any one, however young, bartering a little for one or two eggs. In this way the children may procure the ether on their way to school.

ETHER PHENOMENA.

Intoxication by ether presents one distinguishing feature as compared with alcoholic intoxication. The phenomena are practically alike, but in rapidity of manifestation, alcohol is "nowhere." Indeed, in this respect, ether beats the record. There is the exhilarative stage of morbid exaltation, when the fun and exuberant merriment, the latent and ineradicable impulse of one "spoiling for a fight" of the genuine Irishman stands revealed in the twinkle of the eye, and the flourish of the shillelagh. The pleasing but quickly vanishing whirl of enjoyment is followed by an evanescent episode of brain disturbance and mental riot, with muscular paralysis and incoördination. To these succeeds the concluding comatose stage, when the patient is said to be "dead drunk." The shortest period in which I have seen this inebriate panorama move on till it swung round to recovered sobriety has, with alcohol, been six hours. With ether, I have witnessed the entire revolution in less than two hours.

In my observation an alcoholic inebriate career, from start to a fatal finish, has in America been, on an average, one-third of the duration of a corresponding career in Britain. So, curious to say, has the length of an ether intoxicative paroxysm been one-third the length of an alcoholic intoxicative paroxysm. Thus the etherist can have three thorough "drunks" for one of the alcoholist. Herein, in addition to the greater cheapness, lies the superior claim of ether to the "greedy for intoxication," the true "narcomaniac."

Intoxication by ether may be described as "hysterical," and intoxication by ether *cum* alcohol as "maniacal." A man arrested while drunk on ether alone, would probably be quite sober by the time the constable had him at the police station, which might be very awkward for the constable, though the arrest had been made

when the man was in a frenzy of boisterous excitement. Several deaths from ether, and ether *cum* alcohol, have occurred.

PATHOLOGY.

Little is known of the pathology of ether. The habit has been too young to afford opportunities of much post-mortem examination of ether inebriates. Premature old age, an antedated shriveling up of the living frame, attests the poisonous influence of the destroying agent. Gastritis (acute and chronic), debility, dyspeptic distress, epigastric pain, pallor, tremors, timidity, moroseness, suspicion, nervous prostration, chilliness, a cyanosed or lemon skin, and an intermitting heart-beat, with exaggerated reflexes, are prominent symptoms. I have one such victim in my mind's eye now. Fawning, cunning, terror-stricken, this wretched medical colleague is the incarnation of utter misery. Not yet 40 years of age, he shuffles about like a worn-out old man of 90 after a wasted and mis-spent life. It has been urged by some medical authorities that ether is guiltless of producing any pathological lesion, from the almost lightning rapidity with which its inebriating manifestations appear and fade away, and from no serious morbid after-death appearances having been observed. This conclusion is, in my judgment, premature. Judging from the symptoms from which I have seen ether inebriates suffer, I have not the slightest doubt that ether has a pathological influence on various organs and tissues, and that, if ether drinking could boast of as venerable an antiquity as alcohol drinking, unmistakable lesions would have been but too manifest. What are the forty years of ether consumption by a hundred thousand persons, to the thousands of years of alcohol consumption by at least as many millions of human beings?

REMEDIES.

Happily, this new form of inebriation is but in its infancy, so there is some hope that its growth may be "nipped in the bud." As, in the conversion of methylated spirit into ether, the nauseous methyl products are destroyed, something might be done towards making the liquor loathsome to the palate by the compulsory addition of the wood spirit *after* the completion of the etherification, before the sale of the liquid. This, however, would be but a palliative, for I have had patients under my care who drank methylated spirit (some even from jars with anatomical preparations), and, in Edinburgh and Glasgow, Sunday drinking of this nasty beverage recently flourished apace. In a certain locality in the north of Ireland, the drinking of methylated spirit was introduced seven or eight years ago. At first confined to the very poor in a hilly district, it has spread rapidly, till now farm laborers and farmers are daily indulging in it.

There are many inebriates who hate and abhor the taste of the intoxicant which, in their narcomaniac madness, they would barter their salvation to procure.

Another remedy would be the abolition of the retail sale. This would help by putting difficulties in the way of the drinker, but would only mitigate the mischief. Still more effectual would be the scheduling of ether as a poison, the sale of which is restricted to druggists under certain safeguards. This course was so readily adopted for Ireland by the British Government in January last, that I have yet hope the day will come when the more deadly allied poison—alcohol—will be placed in the same category, and so dangerous a drug will be relegated to the shelf of the apothecary, its sale hedged in with as stringent precautions as is now the sale of arsenic or prussic acid. But this halcyon era of prohibition will only be attained after a prolonged struggle, amid the howls and groans of an enraged liquordom, whose indignation is concentrated on all who attempt to "rob a poor man of his beer."

It is too soon yet to foretell the ultimate result of the bold step taken by our Government in scheduling ether as a poison, but it has made the procuring of ether for drinking purposes so difficult that for the present the sale has diminished by at least 75 per cent. I fear, however, that the cupidity of some wholesale dealers will incite them to risk the penalties of the law by surreptitious sales, which will speedily be ferreted out by the marvelous cunning of the diseased and demoralized inebriate.

The lines of sound treatment of ether inebriety, and of its prevention by law, must alike be based on an intelligent appreciation of the true character and etiology of ether drunkenness. This is, in reality, but a new manifestation of an underlying morbid condition which renders certain of the sons and daughters of men peculiarly liable to plunge into intoxication. We can never hope to succeed in the cure and prevention of any disease, until we first recognize the presence of the disease itself. The malady of narcomania, as subtle as it is far-reaching in its influence on body, brain and mind, and morals, is a legitimate outcome of natural law, and we will not be adequately equipped for the fight till we are thoroughly conversant with the laws under which every form of the disease of inebriety is developed and propagated.

A NEW REMEDY FOR WHOOPING-COUGH is onabaine, in doses of about $\frac{1}{1000}$ grain. It has been tried with success by Dr. Gemmell, of Glasglow, and lately by Dr. I. L. Porteus, of Yonkers, N. Y.—*New York Med. Journal.*

SYNOPSIS OF OPIUM INEBRIETY; EFFECT, NEEDED LEGISLATION, DISTINCTIVE PLANS OF TREATMENT NECESSARY FOR THE SUCCESSFUL CURE.

Read before the Section of Medical Jurisprudence and Neurology, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May, 1891.

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He who has proven himself an attentive observer of the transactions of man for the past twenty-five years, does not hesitate to pronounce the last quarter of the transpired portion of the nineteenth century the most remarkable in the history of man. The philosopher, the scholar and the philanthropist, will be ready to declare that at no period, in all former times, have the intellectual energies of our race made so momentous discoveries, or put forth such exalted plans of benevolence for the benefit of mankind. The mighty achievements in the mechanical world have given new impetus to old powers and created new ones of vast results, profitable to us as a nation and as individuals. Revelations in language, in inscriptions, in customs and laws of nations have unfolded treasures of undoubtable excellence and worth, important in history, and eminently subservient to profound and philosophical investigation of man; while the knowledge now possessed of Nature and her laws, has enlarged the domain of humanity with results of vital importance. Learning is necessarily no longer confined to the favored few, nor is wisdom locked up from those earnestly seeking. Like the rays of the noon-day sun, intellectual light beams forth from almost every countenance; instruction is easily acquired by almost every individual; knowledge unfolds herself to every inquirer. Man is more and more aware of his capabilities. Onward, is the watchword, Progress, the spirit of the times. This is an age of investigation; the relation of cause and effect is sought; mind penetrates everything, theories of the past are being submitted to a more searching inquiry in the crucible of the present, new truths are evolved, old ones confirmed; error and prejudice vanish before the judgment of this enlightened age; we live in an epoch full of change, alive with conflicting opinions. Need we wonder at an obtuseness in the public mind in regard to the legitimate claims of the medical profession, a want of discrimination in recognizing the genuine, or an absence of veneration for the dictates of experience? It has been hinted already that the spirit of the age is one of reform. In social institutions, in jurisprudence, in our criminal legislation, and political economy, leading minds are ardently at work advancing new theories; should not the same principle be made evident in our profession? Should so vital a thing as that of the public health be neglected, is it well that we look on with unconscious indifference at the warfare that is being waged on the life and health of untold thousands by charlatans and imposters, who vaunt their so-called cures broadcast through the medium of the press? The newspapers and periodicals are filled with advertisements skillfully designed to extort money from victims of the opium, morphia and chloral habit; you cannot pick up a paper, be it a religious or not, that does not contain their advertisements. How a Christian paper or journal can be a party to such a crime as that of helping these unscrupulous fiends to make capital out of the unfortunates that are addicted to the use of such drugs, is more than we are able to comprehend; the money to be realized from advertising for such imposters seems to crowd out all sense of right, hence the only way to overcome this evil is to enact such laws as will make it a criminal offense, punishable by imprisonment, to offer for sale any mixture or compound for the cure of inebriety, opium or alcoholic, into which composition opium or alcohol enter, or for being a party to the sale of such drug or compound, by advertising it or otherwise. Until such a law is in effect through the United States, opium, alcohol, and inebriety will hardly have a cure; there is no question but thousands are made mad by the vile stuff that is offered as cures for the opium and alcohol habit; if the compound of itself does no actual harm by reason of any powerful constituent, the disappointment, the blasted hopes that were so elegantly colored up by the advocates of the so-called cures is enough to set one crazy when he learns that his habit has only been fed. Legislation, and legislation alone can reach this specie of fraud, once it is made a felonous act to sell or offer for sale, or advertise for sale any nostrum or compound until an analysis has been made by the State Analyst, and his certificate is attached thereto certifying that said compound does not contain any drug or combination of drugs that are known to enslave. Opium addiction: Is it on the increase? It may be said that opium inebriety is a disease of modern life, or recent origin. Opium eating, as it is called, has been practiced for centuries in the East; in China almost one-fifth of the entire population are addicted. Opium eating and smoking, strictly speaking, never prevailed to any great extent among Western nations until after the discovery of morphine in 1817. Since morphine has come to light it has made thousands of victims; especially has the habit increased with alarming rapidity since the hypodermic syringe came into use. To day, opium, in some of its forms, holds in bonds hundreds of thousands, yes millions of

the human race. We believe that there is no habit that is more pernicious to us, as a people or nation, than that of opium inebriety, for it takes possession more insidiously and holds on more tenaciously than any other known drug. The amount of opium coming through our United States Custom Houses, as reported, does not show an increase in the consumption of opium, during the past eight or ten years. There being no increase of imports does not conclusively show that no more opium is being consumed; legislation, increase of duty, has not shut out the supply. Some years ago Congress imposed a duty of ten dollars a pound on opium, with the hope that such duty would cause a decrease in the consumption of the drug; the effect has been an opposite one. The increase in price has been the means of a large amount of smuggling through various channels, the profits being enormous. Some statistician has calculated that the gains of English opium merchants in the last half century, exceeds two thousand million dollars. Large financial interests are concerned in fostering the opium vice in the United States, and here as well as in England fortunes are being made, by evading the tax imposed. We imported, and there was passed through the custom house, according to statistics of the Treasury Department, as follows:

In 1884, crude opium, 9 per cent. morphia, 264,746.15 lbs., for smoking 1,66,600 lbs., morphine 27,850.18 ounces.

In 1885, 351,609.15 lbs. crude opium containing 9 per cent. morphia, morphine 20,709.50 ounces.

In 1886, 351,193.11 lbs. crude opium containing 9 per cent. morphia, morphine 17,731.47 ounces.

In 1887, 468,153.13 lbs. crude opium containing 9 per cent. morphia, morphine, 14,431.00 ounces.

In 1890, 380,621.42 lbs. crude opium containing 9 per cent. morphia, morphine, 19,953.60 ounces.

It is estimated that during the year 1889 alone, there was something over 800,000 pounds of smoking opium alone smuggled into the United States, and there is every reason to believe that the amount smuggled in is perhaps double, when we consider the fact that every month three or more steamers arrive from China, at the western terminus of the Canadian Pacific Railway, at Vancouvers, most of them having opium on board. An average cargo, it is said, is about 25,000 pounds; a small amount may be retained for consumption in Canada, the remainder, it is said, is smuggled into the United States.

EFFECTS OF OPIUM.

There is a vast difference between individuals, not only as regards tolerance of such a poison, but also as regards the forming of the habit; some temperaments fall almost immediately into the habit, others can use opiates for years and seem as free as though habit was an impossibility; we will, however, find victims among all classes. Morpho-maniacs include many of our literary men, mathematicians and scientists; medical men are more exposed to the formation of the habit than any other class. There is in his case what might almost be called a reasonable excuse for something which will quickly give relief from pain, if attacked, knowing as he does the undoubted effect of morphia to relieve pain; in his hurry, while others are calling upon him to help them, he may and often does insert or take a dose of an opiate. Business and urgent calls give him no time to consider his own case, or how often he has resorted to the remedy, and presently he finds he cannot throw off the craving, a need is implanted almost without his suspecting it. Thus thousands of physicians are made slaves to the opium habit, from which they cannot free themselves unaided, for he is himself no more, all is abnormal. The normal state with an opimaniac is given in a few words: the will is paralyzed, his personality is destroyed. The opium habit is one difficult of eradication, the percentage of reformed drunkards is greater than that of opium inebriety; the drug opium long used becomes a necessity, and if withheld the whole system, every cell, cries out in agony, harmony of function can no longer be maintained without opium, the whole organism has been adjusted to the new or artificial condition in which the elements of equilibrium are in the poisonous drug. A sudden failure to supply the stimuli gives rise to an overwhelming craving, and plunges the individual into a trying ordeal from which there is no relief unaided, except it be by repetition of the poison and in increased doses. It has often been said by those having passed the trial of abstinence, that no one else but such can tell or give the faintest idea of the suffering one experiences when trying to abstain, without having been prepared for such withdrawal; against their better judgment they are driven to madness, and as a rule they seek relief by returning to the accustomed drug. It matters not who he may be, whether of the high or low, or of what caste, he finds he is indeed a slave to a habit over which he has no longer control; self control is a lost factor with him. Opium inebriates tell us but one story, that they are no longer free. Opium inebriety is truly a disease; there is brought about certain molecular changes, and a neurosis is produced amounting to a necessity for the continuance of the drug, until a preparatory stage is passed, during which sedative drugs are used and the system thoroughly aroused, reflex sensibility, or disturbances anticipated by such medication as will displace and tone up the par-

alyzed functions. The mental faculties are among the first that suffer from the use of opium, as melancholia, hallucinations, especially of sight and of dread; sometimes the opposite is the case, instead of sadness or depression, there is excitement or mania, vertigo is common; with some insomnia is of frequent occurrence, perhaps wakeful all night and sleepy during the day. Sensation is generally impaired or perverted, in most cases there is a state of anæsthesia which largely accounts for the painless punctures with the syringe; upon the digestive organs morphia exercises, sometimes, a peculiar influence, if administered hypodermically it sometimes developes an appetite for a time, when if taken by the stomach, it destroys all desire for food, and not infrequently brings about nausea and vomiting; upon the bowels, the paralyzing effect is marked, a large proportion of persons are obstinately constipated while they continue its use, abstinence brings about diarrhœa; many patients are also troubled with dysurea, and only pass a few drops at a time, the kidneys seem to be paralyzed and do not perform their functions well; general nutrition suffers from the paralyzing influence. Those addicted to opium grow old fast, their eyes grow dull, face is without expression, skin becomes yellow and generally greasy.

Abstinence, there is a state of disquiet, an uneasiness, a state of agitation comes over the individual if his dose is long deferred and the system is long deprived of the stimulent, a sense of discomfort takes hold and he is restless and irritable. The highest effects of the abuse of opium are developed in the abstainer; among the marked symptoms are diarrhœa which can always be expected if the opiate is suddenly withdrawn, and if it does not come on, the patient should be watched, for he is probably deceiving you, shamming.

DIAGNOSIS.

You are generally struck by the strange appearance and expression of this class of people, the wan complexion, the vacant look together with a dulness, listlessness, with marked lowering of the physical as well as moral status, functions of nutrition are profoundly affected, with generally a loss of appetite and obstinate constipation; the most reliable method of diagnosis, and one that does not require acknowledgment on the part of the patient, is the examination of the urine; morphine is eliminated by the kidneys and can be found in the urine, and when found you are absolutely certain that the habit exists. Examination from day to day is a part of my method for the detection of deceit on the part of the patient; of course it must be taken into account that the alkaloids of opium are not all eliminated for some eight, or possibly ten days after commencing to abstain; by analysis of the urine we have a certain means of knowing the condition of our patient.

TREATMENT, DISTINCTIVE PLANS.

There are some three or more plans or meth ods. First is the abrupt withdrawal or suppression, practiced by the somewhat noted German, Dr. Livinstine, and by many others after him. The plan is simply to take away the drug at once, without any preparation whatever. In regard as to dose; experience has taught thousands that the use of morphia or opium can not be suddenly stopped without serious results following. The abrupt withdrawal entails much suffering of mind and body and a risk of suicidal ending. Collapse is threatened on every hand; such a method is barbarous, uncalled for and inhuman; any one subjecting a person to such cruelties should be held for malpractice. Dr. J. B. Mattison, of Brooklyn, one of our ablest American writers, a man of considerable experience in this line has, upon several occasions, expressed himself as bitterly opposed to the abrupt withdrawal, and holds that no man is warranted in subjecting his patient to such torturing ordeals. We are aware that the Livinstine method has its advocates even to day, and some are high in the profession; we are of the opinion of Professor Bartholow, when he says one such an experience and he could not be induced to repeat it, if for no other reason than strictly humanitarian reasons, since the mental and physical sufferings are truly horrible. The dread of untold sufferings that one has to undergo keeps hundreds under the yoke of habit; the impression is broadcast over the land that to quit it is to entail upon themselves tortures beyond the endurance of almost any ordinary person. A second method is the rapid withdrawal, but not abrupt. Dr. Mattison advocates this method and it is generally a safe one to pursue. The plan consists of first producing a certain amount of sedation or control of the reflex irritation present. Dr. Mattison, in his monograph on the treatment of opium addiction, says the use of sodii bromide is, so far as he is aware, original with him in connection with the treatment of the opium reflex irritability; we have found in it the safest and most valuable sedative in such cases, for many years, our attention being first called to the effect of bromide of sodii and its probable action in the reflex disturbances following the withdrawal of opium from the human system by the late Dr. Beard. In using bromides to counteract, and to get desirable results, it requires large doses and for some days, from four to six days. The system needs to be constantly under the influence for such a length of time as named before an attempt is made to withdraw, in other words, the maximum sedative effect of the bromide should be secured by the time the maximum nervous dis-

turbance is expected or brought about by withdrawal of the opium. The rapid withdrawal is, in some respects, the most desirable of either the three plans. Sudden, rapid or gradual, better than the first from the fact that the system is saved the severe shock of the first and the neces sarily longer time of the latter, and were it not a fact that many cannot even endure without severe trial and suffering under the rapid method, I certainly would rigidly adopt such a plan, but the gradual, with me, seems to meet more constitutional conditions than either. Gradual withdrawal is the easiest plan and the one most likely to succeed in the largest percentage of cases; it is to us the most logical from the very fact the habit is gradually formed, certain conditions and changes were produced gradually, therefore, it is rational to gradually withdraw or undo.

NECESSARY MEANS TO SUCCESS.

It is indispensable that the patient place himself under care of one familiar with the work, one that has studied the conditions that are likely to arise during the period of abstinence. Opium addiction, it matters not how used, produces radical changes in the system, a neurosis is produced amounting to necessity for the continued use of the drug, the demand for opium is so imperative as to place the consumer wholly beyond the power of resistance unaided. The principal difficulty we encounter in treating those addicted to the use of opium, is that they have lost about all their will power, or self-control, in fact, confidence in themselves; they have a disease that impels an increase rather than power to diminish the doses, repeated attempts to abandon the use of opium has proved their utter inability to even diminish the dose; therefore there is but one road leading to a cure, and the only remedy or reasonable chance or plan that offers any assurance of a cure, is to place themselves under the care of a specialist in the work; in the hands of a conscientious practitioner who from contact, study and close attention to each patient's peculiar needs can best provide for every emergency, opium inebriety or eating, as it is called, is a vincible disease and curable, the person being otherwise constitutionally strong and free from organic disease, having an earnest desire to be cured; it matters little as to the extent or time used, nor need there be any dread of the hard ordeal to be passed through that has been pictured as worse than death; there are days of rational medicine, of humane and scientific methods. A special institution designed for such cases is the proper place, where appropriate arrangements are made for the care of each person, with provision for carrying out the best method for each particular case; certain symptoms and conditions have to be met promptly when they do arise; in some instances a collapse condition threatens, which is best met by stimulants of ammonia or alcohol; in extreme cases a hypodermic dose of morphia may be a necessity for the time; delirium can be warded off by coca, chloral and bromides; if there is vomiting, omit food of solid character and give hot beef extract, hot milk, beef peptonoids (liquid form), medicine, ammonia ar. spr., bismuth sub. nit. Diarrhœa: clear out the prima-viea first by an emulsion of ol recine with spr. galci, then give bismuth sub. nit. and zinc sulph. carbolate. Pains in the legs treat by hot foot bath, massage and friction. Sleeplessness, restlesness: be sure first that your patient is not shamming, then give full doses of bromide, and sometimes ammonii valennate in the elixir form. Where sleeplessness comes without pain, I believe we have in the new drug, sulfonal, a most excellent sleep producing agent; being tasteless, is easy to administer. Sulfonal-bayer, is truly a hypnotic, in doses of from 10 to 20 grs. it does not derange the appetite or digestion, and does not seem to have any effect on the renal secretions, acts in from 1 to 3 hours and the the effect lasts from 5 to 7 hours. In insommia from pain it is of no value. From our present therapeutic knowledge of sulfonal we think it not advisable to give it in increased doses, from day to day, rather, if necessary, to give it nightly, in diminishing the doses. Codea is a preparation of opium that can be given to allay pain as safely as any of the opiates and without any great liability to formation of habit; in cases presenting an anæmic condition, iron and strychnia are proper. If any notable depression or prostration of any considerable duration, alcoholic stimulants are demanded. Restlessness and insomnia are frequently warded off by the hot bath before the hour of retiring. Electricity is useful in lamost all cases and many times will tranquilize the system, especially the electric bath. Among the essentials that are positively needed, if you would succeed, is mental quietude. Opium and chloral cases need be in an atmosphere of tranquillity, away from all exciting causes; lively diversions, pleasant company are desirable; the patient should first of all select a heathful place with cheerful surroundings as practicable, and above all, place him or herself in the care of one in whom they have confidence; once in the institution no more information should be imparted as to when or how they get rid of the opiate; if the patient is one that uses the hypodermic syringe, a change must be made at once, the syringe must be discarded and all opium should be taken by the mouth.

THE College of Physicians of Philadelphia has awarded the Alvarenga Prize for 1891 to Dr. L. Duncan Bulkley, of New York, for his essay on Syphilis Insontium.

THE ABSENCE OF REASONABLE MOTIVE IN THE SO CALLED "CRIMINAL ACTS" OF THE CONFIRMED INEBRIATE.

Read before the Section of Medical Jurisprudence and Neurology, at the Forty second Annual Meeting of the American Medical Association, Washington, D. C., May 6, 1891.

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"Motive" may be defined as that which actuates or influences, that which determines choice. It implies the presence of an unimpaired will power, at least one that is not so seriously impaired as to be incapable of volition, and actuated either by right or wrong desires.

Impulse is the sudden application of some powerful motive, that causes the will to act hastily without usual deliberation, or that exercise of the reasoning faculties that occurs when a purpose is deliberately formed. The genesis of impulse may be a good or evil motive.

In both instances either when the act results from the motive operating upon the mind through a deliberate and logical course of reasoning, or impulsively, as when the motive acts independently of, or supercedes and dethrones reason, if it attempts to assert itself in either instance, there is one *condition* that is common to both, and that always is present, namely, *consciousness of the act.* The person invariably knows he has performed the act whether the "motive" were good or evil, the result of deliberation or of impulse.

How often do we hear the expression, "what motive urged him to do such an act?" and if the person be in a normal mental condition the law, if the act involves a legal infringement, arrests and punishes the transgressor. But are these words applied to the acts of an insane person? Certainly not. All acknowledge that the will power in this case is held in abeyance in some instances, or permanently annulled in others in which the insanity is *incurable.* The actions of the acute or chronic insane are "senseless" and utterly devoid of reason; if a "quasi" motive is asserted it is insufficient, and as a rule ridiculous, incompetent to explain an act often involving matters of the greatest moment, even life itself. This is seen in certain forms of monomania. Thus the pyro-maniac sets fire to a crowded tenement. Gives as a reason for his motive in so doing that he likes the excitement and confusion incident to such a scene; all other motives based on rational explanation being excluded, such an one would be regarded and dealt with simply as a person possessing a dangerous monomania, and demanding close confinement in an insane asylum. No one is held responsible for his acts, if he is incapable of exercising his will power, the ability to reason from cause to effect or discriminate between good and evil courses, and the consequences resulting from these.

Even in some forms of insanity where the will power and reason are not totally annihilated, the insane person capable of exercising a discriminating power to a certain extent, having at least a partial knowledge of right and wrong. Even in these cases the insane person is never legally *punished* although he may be disciplined by "institutional forms of correction;" this treatment is much the same as a child, who has not yet arrived at the years of discretion, and is still subject to his parents; the parent may correct the evil doer of tender years, yet the law will not punish such an one.

The law recognizes this fact, the absence of full responsibility among the more youthful class of criminals, and among the "criminal insane," so-called. In the former instances the State establishes "Reformatories," in the latter, an asylum for the "Criminal Insane." But while the insane, the imbecile, the idiots, and those of tender years, have thus been leniently dealt with, by some strange, illogical process of reasoning, or by actual indifference to the facts of the case, the confirmed inebriate has been excluded from all these benefits, and moreover, his inebriety has been regarded not as an extenuating circumstance, but rather as an aggravation of his so-called criminal act.

Are his acts rational? Are they based on a reasonable motive? are they the result of a well-balanced mind? is he always even conscious of the acts he performs? Analyze the acts of the confirmed inebriate and you will find that they are the acts of an *insane person.* Insane from the temporary or habitual use of alcohol.

If we can show that in the majority of cases, in the acts of the confirmed inebriate there is absence of proper motive, absence of intelligent impulse, absence even of consciousness of the act in some instances, ought he not to come under the benefits of that unwritten or recorded law which excludes from penalty the insane or those of an irresponsible age, and does not hold them responsible for their acts?

It has been abundantly shown, particularly by the researches of Dr. T. D. Crothers, that amnesia, partial or complete, is the mental condition of the average confirmed inebriate. If the loss of memory is complete, he becomes a veritable automaton; his movements are mechanical, devoid of thought or reason, and he is therefore unconscious of his acts; under this condition what he does may be ridiculous or even dangerous. His actions are similar to those of a somnambulist who, walking in his sleep, performs deeds of which he is totally unconscious when awakened. The acts of the confirmed inebriate are thus often performed unconsciously, and when he comes out of this "trance state," so-

called, or condition of cerebral automatism, he has not any knowledge of what he has done, and yet oftentimes there is a seemingly rational action on his part, and his condition may not be detected, because not suspected, by those with whom he is brought in contact; while in this condition the inebriate may commit acts that are criminal.

Mendacity has been set down as one of the prominent characteristics of the inebriate, but I am convinced that the denial of the inebriate of the statements he has previously made or the acts he has done, when confronted with them, is often due to his utter unconsciousness of ever having made such statements or performed such acts.

The "testamentary capacity" of a confirmed inebriate should be excluded on this ground, and no "confirmed inebriate" should be empanelled in any jury, nor should his testimony as a witness be received in any court.

The validity of the signatures of confirmed inebriates, to wills, contracts, or affidavits should always be questioned if allowed, and "marriage" contracted under these conditions should be annulled. I am acquainted with an instance in which the confirmed inebriate was a young man of wealth, who contracted such a misalliance. The validity of the marriage was not questioned on the ground of the avoidance of publicity, and the woman, whose sole object was money, finally consented to relinquish her claim for the sum of twenty thousand dollars. Now I maintain that such a marriage was not valid, and would not have been recognized in legal courts.

Not only in the trance state, where consciousness seems to be annulled, and the memory temporarily abolished, may the inebriate perform acts that he is totally unconscious of as a somnambulist or automaton, and thus render himself liable to criminal procedure, or the subject of fraud on the part of others.

But there is under this condition a tendency to repeat the crime or act he may have been previously guilty of, a *monomania*, so to speak, for a special act.

Dr. Alex. Pudden of Edinburgh, reports the following cases:

At the prison of Perth, one woman was committed 137 times for being drunk, *her invariable practice was to smash windows*. A man when drunk stole nothing but bibles. Another stole nothing but shawls; another shoes. A man was transported for stealing tubs on seven different occasions; with one exception he was always guilty of tub stealing. Others have been repeatedly convicted of horse stealing.

In others the destructive tendency is marked; to pull down and destroy, unusual prodigality and waste, such as scattering money in the street, or throwing it in the fire. Such persons are notorious for "cleaning out" a saloon, smashing, breaking and throwing out on the street articles of furniture, etc. There is not any "reason in the madness" of these temporarily insane inebriates. Their actions are "motiveless." The whole machinery of the will is out of order, the power of coördination of the faculties is lost, hence all acts are erratic.

In addition to the "trance state" and "monomanical acts" of the confirmed inebriate, there is another condition under which the inebriate may perpetrate higher grades of crime. We refer to that condition where the prominent characteristic of the insanity of the inebriate, is the monomania of suspicion or persecution, a condition not uncommon in the confirmed inebriate. Under this condition the inebriate is morose, taciturn, secretive; if he communicates his suspicions to any one, it is only occasionally and with great reservation. He imagines that enemies are trying to poison him; he hears voices in the air; he is followed, and in danger of being waylaid, or his wife is unfaithful to him; suspicion of "marital infidelity" is very common in these cases. Robbery, mutilation, murder, every possible contingency that may happen to a person, are imagined by these insane inebriates, as being applied to their case.

Acting under erroneous suppositions, they prepare themselves for the imaginary danger, or assault those whom they believe would injure them; or take vengeance on the innocent wife whom they judge guilty of marital infidelity. Oftentimes their mental condition is not suspected, and oftentimes only after they have wreaked their insane fury on those about them.

And just here in parenthesis we would remark that though the acts of the *confirmed inebriate* may fill every grade of crime, from petty theft to homicide, yet those criminal acts which call for shrewdness, mechanical skill, involving as they do the maturing of long continued plans, well laid, and aptly executed, as professional burglary, systematic forgery, etc., the confirmed inebriate is incapable of.

The burglar and the systematic forger may drink liquor, but they have the fullest exercise of their mental faculties, and the ability to use liquor moderately, so that their hand is steady, their nerves unflinching, and their reason unclouded. This is the universal testimony of the governors or wardens of penitentiaries and prisons in America and Great Britain, and hence is the great distinction between the so-called "criminal inebriate" over the professional criminal. The confirmed inebriate acts without motive, without the deliberation, without that usual caution and concealment that characterizes the criminal who is in a normal mental and physical condition.

Hence the insane inebriate, the subject of the monomania of suspicion or persecution, is easily

traced to the act committed by him, and his attempts at concealment, if made at all, are illy disguised. He is not an assassin, striking from the shadow and then disappearing. His acts are often in the open day and the most conspicuous public places.

Let me cite a prominent example or so that may more forcibly illustrate this class of insane inebriates. And these cases will also partially illustrate the acts of the inebriate epileptic—different only in this, that the prodromata or period of incubation is longer in the inebriate having the monomania of suspicion or persecution, than in the epileptic inebriate. In the latter, the act occurs as the coma following the convulsion had passed off. The latter class are the most dangerous of all insane inebriates, for they add to the insanity of epilepsy, that also which alcohol begets. The following cases are instances where the characteristic type of the insanity of the inebriate was the "monomania of persecution" or of suspicion.

Case 1.—"The patient is 43 years of age, has been drinking to excess for several years past, is insane. The insanity is the direct result of his excessive use of alcohol—there is not any hereditary taint. His insanity lasted about a year; he recovered and resumed his business, only to relapse, and is now drinking harder than ever. The immediate cause of his relapse was a sprained ankle, from which he suffered very much. His insanity at all times is that of the 'monomania of suspicion' or 'persecution.' His suspicions are mainly directed towards his wife and child. He walks about the house, and if he had his full liberty, would no doubt assault them, for it was found before his condition was fully ascertained, that he had concealed, under the stationary washstand of the bedroom occupied by himself and his wife, a dirk knife, which was covered with some old clothes." (Reported by Dr. I. E. Lester, *Journal of Inebriety*, Vol. vi, p. 32.)

The following case was reported by Dr. Drake, of Cincinnati, O., and was published in the report of the New York State Inebriate Asylum for 1866, the late Dr. I. E. Turner, Superintendent. At the time of the occurrence, it attracted the attention of the medical public in its bearing on the legal responsibility of the insane.

"John Birdsall, of Harrison, in that State, was indicted in 1829 for the murder of his wife with an ax, by dividing the spinal column in the neck. He was about 50 years of age, had been married to this his second wife nineteen or twenty years, and had children by her. For some years previous he had been subject to fits of intoxication. These, of late, were followed by delirium tremens, which generally lasted several days. In these paroxysms, he entertained great fears for his safety—ran about the village as if attempting to escape pursuit. At *another time he concealed himself between a straw bed and a feather bed in his own house. He would point his gun from a window*, as if for *defense against* imaginary *persons*. He was also very watchful.

"The prevailing maniacal delusion was that his wife was in combination with his neighbors, and his son by his first wife, against his life. He had charged her, during his paroxysms, with criminal intimacy with these, and had threatened to kill her on Sunday. He was intoxicated Monday, Tuesday and Wednesday. On Wednesday evening, he complained of being unwell, but seemed to be rational. He slept none that night, and next day the family thought him crazy, but were not alarmed. In the course of the day he took an ax and went to a neighbor, whom he desired to return with him, as he stated they wanted to kill him (monomania of persecution). He spent the remainder of the day at home, apparently in terror and agitation, manifested jealousy of his wife, barred the doors, and fancied that the person of whom he was jealous was manufacturing ropes up stairs to hang him. In the course of the afternoon he suddenly committed murder. His wife was sitting by the fire, and he walked into the room. After the fatal blow on the neck, he followed it by two or three on the face. His eldest daughter seized the ax, which he yielded, but took a scythe and attempted to strike her. She defended herself until the door was opened. When arrested, he acknowledged the homicide, and knew, he said, that he would be hung, and regretted that he had not done it sooner. After being committed, he became regular, and expressed sorrow for what he had done. On trial, three medical witnesses agreed that he labored under *mania à potu* when he committed the homicide.

"For the defense it was urged, that when *drunkenness gives rise to insanity*, it *should cause immunity*, and hence form a legal excuse. On the other hand, the counsel for the people remarked '*that Birdsall knew that his delirium followed his intoxication, and hence it was voluntary.* The law therefore held him accountable for actions during such a state.' The verdict was murder in the first degree, and he was sentenced to death." It is needless to add that there was not the slightest foundation for the insane vagaries of Birdsall, and no "*reasonable motive*" for his act.

Let me cite still another case, reported as a newspaper item. "Alexander C. Wingate, a wealthy resident of Woodford Co., Ky., was shot dead at about 4 o'clock this morning (March 29, 1882), on an Ohio and Mississippi train, near Mitchell, Ind., by a man named Haynes, who was crazed by drink, and had no provocation for the shooting.

"Mr. Wingate was returning home from a business trip from the West, and was in a sleep-

ing-car. Haynes entered the car, laboring under great excitement, and said to the porter and several passengers that he had been followed by thieves from San Francisco, who were bent on robbing him (mania of suspicion). He begged the passengers to keep his money—which amounted to only $90. The porter tried to pacify him, but he grew more desperate, and flourished his revolver around wildly. The train men were either too cowardly, or did not have sense enough, to wrest the revolver from him, and eject him from the train.

"At this time, Mr. Wingate stepped from his berth. Haynes immediately confronted him with the revolver, and exclaimed, 'Give me my money,' and fired. Wingate threw up both hands, cried 'I am shot,' and sank down dead. The maniac (from alcohol) turned, and fired two random shots, then darted past the passengers and out of the car door, and jumped off the train, which was running at the rate of 45 miles an hour. He landed safely, walked half a mile to a creek, stripped himself naked and jumped into the stream. His dead body was found there this morning. His clothes were found hanging to a tree 100 yards distant, and they contained $90 in gold, a gold watch, an express receipt for $400 sent from El Paso, Tex., to New Salem, O., and a quart bottle of brandy, half full. In his valise was found a gambler's 'lay-out.' Haynes is from Yuma, Ariz. He was evidently laboring from delirium tremens (?) at the time of the deed, or rather '*mania à potu*.'"

Although homicide was the prominent feature of the case, "homicidal mania" was not. Haynes did not kill Wingate because a predisposition to kill some one predominated, but as an act of supposed self defense, and to resent the injustice that he supposed Wingate had inflicted on him. In other words, the "mania of persecution" was the leading form of insanity—a form very common in cases of insanity arising from alcohol.

There is no crime in the calendar that these alcoholic maniacs may not commit. Their reason is temporarily dethroned, they are unconscious of not only the character of the act, but of the acts themselves, and are therefore irresponsible. The following case shows the complete annihilation of all mental and moral responsibility.

"A young man in Madison Co., in this State, in the year 1859, was attacked with alcoholic delirium for the third time. While under the attack, he killed his father and mother, cut out their hearts, which he roasted and ate. He was arrested, thrown into prison and indicted for murder. He was brought into court for trial, when Judge Gray, of the Supreme Court, stated that the case could not be tried, '*as there was no motive to prompt a man to commit such a crime.*' This man was sent to an insane asylum."

Let me cite a case taken from the records of Broome County Circuit Court: "On Decoration Day, 1885, George Axtell, a young farmer of the town of Middletown, New York, visited Deposit village, and became intoxicated. While in this condition, and without provocation, he ran amuck (a mok) with a pistol and killed three men. Axtell was condemned to be hanged, but died in jail of heart disease, prior to the date fixed for his execution, or we would have had to record another case of judicial murder."

Axtell was undoubtedly affected by "mania à potu," or "alcoholic frenzy" or mania, when he committed the homicides, and was entirely irresponsible. These cases of "alcoholic homicidal mania" are not uncommon, and the daily prints often furnish us with similar examples.

I might cite many cases in point showing the various kinds of alcoholic insanity, and the crimes committed, as well as the judicial opinions expressed, but let these suffice.

The question whether "premeditation" could be proven in the case of the criminal inebriate could not, we think, weaken the position taken of the irresponsibility of the inebriate. In some instances apparent premeditation may exist; but the absence of a "reasonable motive" should certainly give force to the plea of irresponsibility.

The popular impression seems to be, testifies Mr. John C. Salter, the warden of the State penitentiary at Chester, Illinois, that a criminal is necessarily a drunkard.

The large proportion of criminals, such as burglars, forgers and counterfeiters, need clear brains, steady nerves, quick perceptions, to carry out their plans, which would be impossible under the influence of intoxicating drink.

The assassin may drink to nerve himself to the deed, but only to that extent, and no more. This form of crime, where the alcoholic stimulant is taken *deliberately*, with the intention of nerving the criminal to the act, is most aptly shown in the great Shakespearean tragedy. Lady Macbeth, so stimulated and nerved as an accomplice to Macbeth in his bloody deed, thus soliloquizes:

> That which hath made them drunk hath made me bold;
> What hath quenched them hath given me fever.

Here the antecedents, the motive and the subsequent events of the plot take precedence, and the alcohol taken within to produce drunkenness—not lethargy—plays but a secondary and inferior part in the whole tragedy. The "deep damnation of the taking off of Duncan" is not lessened one whit by the fact that alcohol was used by the conspirators and murderers to nerve themselves for the tragedy. The alcohol did not prompt the deed; it was deliberately taken to enable them to perform it—a condition quite the reverse of the insane inebriate or the person suffering from "chronic alcoholic mania," in which the "mania of suspicion," or an acute alcoholic

mania is developed. Here the maniac, in his sudden fury, cyclonic in its violence and rapidity, kills those nearest to him without premeditation or motive.

To sum up the logical conclusions resulting from the study of criminal inebriates in a single paragraph, we would state:

"An act, to be criminal, and to be enrolled under the code as a crime, must show such preconception, or preparation, or motive, as to make it an act of deliberation, and the intent must be proven by the relation of the accused party to the deed, before, during and after its commission.

"If from simple impulse, without premeditation, the act must be shown to have been uninfluenced by any drug capable of affecting the intellect and developing maniacal impulses; and further, that the person committing the act was in full possession of his mental faculties, and was uninfluenced except by a reasonable motive that prompted the deed. In special cases, as in murder, the ground of self-defense may satisfactorily be excluded. Under these circumstances, the person has committed a crime, and the evidence must acquit or condemn him."

In all cases, a history of previous *confirmed inebriety*, coupled with an entire absence of *reasonable motive* or antecedents, should give the person committing the act the full benefit of the plea of irresponsibility, and the same "legal excuse" that is applied to the acts of "insane criminals."

And in conclusion, I have only to add that the "criminal inebriate" should be dealt with in the same manner as the "criminal insane."

HOW MUCH OUGHT A SMALL CITY TO PAY ITS HEALTH OFFICER?

BY HENRY B. BAKER, M.D.,

SECRETARY OF THE STATE BOARD OF HEALTH, LANSING, MICHIGAN.

[From advance sheets of "Proceedings of a Sanitary Convention held at Negaunee, Michigan," August, 1891.]

I presume that the reason why each city is required by law to have a health officer, is that sentiments of common humanity dictate that proper effort shall be made, constantly, by the officers of every locality, for the best possible protection of human life and health within their jurisdiction.

But in this paper I propose to go a step further, and to point out the fact that this high humanitarian position which the law contemplates, when it requires cities to guard the health of their inhabitants, and to contribute facts and statistics for the general welfare of the people of the State, that all this from a financial stand-point, pays the people of each city and of each locality. I propose to speak especially of the city of Negaunee, but the same principle which applies to Negaunee is applicable to other cities and localities.

Let us estimate the population of Negaunee as about six thousand, and that the death rate in Negaunee is about the same as it has been in other parts of Michigan where it was not specially influenced, say about seventeen per thousand inhabitants per year. Then, the average number of deaths in Negaunee per year would be about one hundred and two. Of this number, a little less than twelve per cent. would be from consumption, six and a half per cent. from diphtheria, two and seven-tenths per cent. from scarlet fever, three and two-tenths from typhoid fever. These are all communicable diseases, and they are preventable through measures which are now known to health authorities.

Reliable statistics, collected by the Michigan State Board of Health, have proved that (even after the disease is introduced) about seventy-five or eighty per cent. of the deaths from diphtheria and from scarlet fever are prevented if complete isolation of all infected persons is enforced, and there is then thorough disinfection of all infected substances.

I believe that there is a similar saving of lives from loss by typhoid fever, where the proper local health measures are enforced. Relative to typhoid fever, these measures are not so completely dependent upon efficient services by a health officer as are those relative to diphtheria and scarlet fever, yet they will not be likely to be effective except such services are maintained.

It is possible then, through and in connection with the services of an efficient health officer, to save, in a city the size of Negaunee, in each year, the lives of about five persons from death by diphtheria, about two persons from death by scarlet fever, and, I think, about two persons from death by typhoid fever. In some years they might be more, and in some years, less; but these are the average figures per year, for a series of years. Surely the saving of these lives, and of the sickness of the still larger number of persons, is well worthy the effort of the city in compliance with State laws. But I wish to point out the fact that in saving those lives, and in the lessening of sickness, there is saved to the city that which has cost money, and that which if lost, would have been a loss in money values far in excess of the cost of any effort which the city puts forth in sustaining an efficient health service. It costs money to raise up children to the age when they become producers of wealth. If children are permitted to die of communicable and preventable diseases, there is a great waste not only in life, health and happiness, but also in money. Statisticians have computed the average value of an adult person, for what that person will earn in excess of cost of maintenance, as about one thousand dollars. Practically about the same conclusion was reached by those in the

south, who some years ago bought and sold slaves, a good one selling for about eight hundred dollars.

If, now, we consider that the seven persons in Negaunee in each average year, whose lives should be saved from diphtheria and scarlet fever, are each worth five hundred dollars, there is in each year a saving of three thousand five hundred dollars from those two diseases alone. If two lives are saved from typhoid fever by disinfection of infected matters, and by other methods which a good health officer could teach, the persons saved from that disease would ordinarily be in the prime of life, and this saving should be counted as two thousand dollars.

There is, then, a probable saving of $5,500 a year in Negaunee, by such work as can be and should be done by and in connection with the services of an efficient health officer, and this with reference to only three of the dangerous communicable diseases. Of course, I believe that lives can be saved from other diseases than those in which I have just computed the saving, but I have omitted most of them because not needed in my argument, and I have selected the three which I mentioned, because in diphtheria and scarlet fever we have the absolute proof that lives can be saved by measures that are well known to us, and in typhoid fever it has been proved beyond question that the disease can be almost entirely prevented by other measures which are equally well known.

In this brief statement of facts I have omitted all consideration of the costs incident to sickness, including physicians' compensation, medicines, nurses, loss of time, etc., also the cost for funerals, and have confined myself rigidly to the money losses through the actual deaths from three diseases. Without the efforts which I have supposed to be put forth by an efficient local health service, there is a money loss in a city the size of Negaunee, through the actual deaths from those three diseases, equal to $5,500 per year. Is it not better and really more economical to pay $5,500 per year for public health service than to bury that which is equal to that amount in money value in the graveyard?

I am ready to admit that this counting of the cost of the life blood of your neighbor and perhaps of yourself; of your neighbor's child, perhaps of your own child, is to me exceedingly repugnant; but so long as your neighbor's life and your own, the lives of your neighbor's children and of your own, are not properly guarded, but are permitted to be endangered from these same diseases that I have mentioned, it is plain that some other argument than the usual one must be presented.

Undoubtedly, public-health work in cities is neglected because of lack of information as to *how much* effort should properly be expended. Such computations as those I have put before you should help us to arrive at conclusions on this point.

We will admit, if you please, that when deaths occur, the loss is not equally distributed among the people of the city; generally the loss falls most heavily upon the bereaved family, and this is especially true if the death is of the bread-winner of the family. But it should not require much argument to show that the prosperity of a city depends greatly upon its heathfulness and the safety of life therein, and that, in a long series of years, the deaths are distributed somewhat equally among the people, and that, even if they are not equally distributed, a high moral sentiment should prompt us to guard the common safety of life among us. It was recognized, even before the Declaration of Independence, that to each citizen the right to exist, the life of the individual is among the inalienable rights to secure which "governments are instituted among men." It is plain, therefore, that one of the highest, perhaps the very highest, function of government is to guard the lives of the people.

Having reference, then, to only three important diseases, it seems plain that a city the size of Negaunee has the undoubted right to expend in every year at least $5,500 for the restriction and prevention of diphtheria, scarlet fever and typhoid fever. I think that there is good reason to believe that the citizens of Negaunee would make money by this work; because they would incidentally save lives and cases of sickness from other diseases than those I have mentioned; and, besides, in my account of the losses by those three diseases, I accounted only for the losses by reason of the deaths, leaving out of the account all the great expenses for the sickness. For instance, from the two diseases, diphtheria and scarlet fever alone, an efficient health service, properly supported, should in each year save all the expenses incident to forty-three cases of dangerous sickness.[1] All such saving would be a clear profit, in case the city expend the $5,500 per year, as previously suggested, and save $5,500 worth of lives, as I have shown may reasonably be expected.

I would advise that at least $1,000 a year should be expended toward securing a water-supply which is above suspicion. This with special reference to the prevention of typhoid fever. I would use another $1,000 per year toward securing good sewerage, and a proper disposal of waste. Five hundred dollars would

[1] The reports, compiled by the Michigan State Board of Health, show that for each death from scarlet fever there are over ten cases of sickness from that disease; that for each death from diphtheria there are four cases of sickness from diphtheria. Therefore, the seven deaths on an average yearly from diphtheria in the average place the size of Negaunee should represent twenty-eight cases of sickness, and the three deaths from scarlet fever represent thirty cases of scarlet fever—fifty-eight cases from the two diseases; and, inasmuch as 75 per cent. of them should be prevented by an efficient health service, forty-three of the cases should not occur.

pay for disinfectants, for printing annual and other reports of sanitary officials, including the water and sewerage commissioners, and for other incidental expenses This would leave $2,000 per year with which to pay the salary and expenditures of the health officer.

The law now requires much more of the health officer than it formerly did; and it provides fines and imprisonment for neglect of duties connected with dangerous diseases. If the health officer attends to such diseases, he must lose his ordinary practice. Accordingly, his compensation should be greater than formerly; it should be greater than he could obtain for the same time by the regular practice of his profession as a physician. The life and health interests of the whole people of a city are of more consequence than those of the patrons of any single physician, no matter how large and lucrative his practice may be. But there is another still more important consideration. No reputable physician claims to *cure* any real specific disease such as diphtheria, scarlet fever or typhoid fever. After a person has contracted the disease, it is important to have a skilful physician to watch and guard the patient as thoroughly as possible through the course of the disease, but no physician claims to stop or break up the course of the disease. Physicians are needed to lessen the chances of death among those who have been permitted to contract these preventable diseases. The truest economy consists in lessening the chances of contracting such diseases. The compensation to physicians should be for the prevention of all such diseases, then it would not be required for the cure, during which a large percentage of the cases prove fatal, and this under the best methods of cure in the hands of the most skilful physicians. About the only practicable method of transferring the compensation to the proper kind of service, is to employ the physicians as health officers and as members of local boards of health.

In many places the people are so ignorant on these subjects, that they do not provide sufficient compensation to induce the best physician in the city to act as health officer, and to give his whole time to the public service. It is noticeable that it is in just those cities which do not sustain an efficient board of health, and do not constantly employ and pay for the services of a first-class health officer, that the dangerous diseases are so destructive. I am informed that here in Negaunee, the health officer receives from the city only $500 per year. That is for guarding the interests of the health and life of all the 6,000 people in the city. At the same time there are in Negaunee six or more physicians, who are paid and well supported, each attending to the sick among only a portion of the people of the city.

I fear that the saving of life and treasure which I have computed as possible has not all been made in Negaunee, but I look forward to a time when, through the payment of a few thousand dollars per year for a complete and efficient health service, there will be saved the lives of even more than the nine persons whom I have computed should be saved from diphtheria, scarlet fever and typhoid fever, and to a time when Negaunee shall have become one of the favorite summer health resorts of those who every summer seek to avoid the heated atmosphere of localities farther south.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Section on Orthopædic Surgery.

Stated Meeting, October 16, 1891.

SAMUEL KETCH, M.D., CHAIRMAN.

Dr. Royal Whitman presented a patient illustrating the application of a brace for the more perfect fixation of the spine in disease of the middle dorsal region. The appliance consisted of two saucer shaped pads covering the prominence of the shoulders, connected by an unyielding steel bar, passing across the chest; and two triangular hard rubber pads covering the lower two-thirds of the scapulæ, connected by a steel bar. The Taylor back-brace was applied as usual, and the back bar attached to its upper portion. The shoulders were then pressed back to their full limit, the front pads placed in position, and firmly attached to the brace by straps passing above to the neck bar, and through the axillæ to the back pads which held the scapulæ against the thoracic wall. Motion of the spine was thus confined entirely to the neck. Although the necessary movements of the arms were not restricted, forward reaching movements, which were always accompanied by flexion of the dorsal spine, were entirely prevented. This principle, the restraint of certain movements of the arms which tended to increase the existing deformity, was the point to which he wished to call the attention of the Society, as he was not aware that its importance had before been insisted on.

Dr. R. H. Sayre fully agreed with Dr. Whitman as to the necessity of keeping the shoulders back in this class of cases, but the difficulty hitherto had been to maintain such apparatus in proper position. In a paper which he had read at the recent meeting in Washington, he had called attention to the fact that when the disease was situated high up in the dorsal region, the plaster of Paris jacket did not give proper support, because it failed to hold the shoulders back, and that in such cases, he was in the habit of employing pressure backward on the tips of the shoulders.

Dr. Newton Shaffer thought that the apparatus exhibited acted admirably in fixing the shoulders, but it was open to the grave objection that by exerting pressure on the scapular plates in this way, the uprights are prevented from exerting the proper amount of pressure at the seat of the disease, and so the apparatus was not able to arrest the traumatism of respiration. He thought this was a defect inherent in the apparatus, and not, as Dr. Whitman believed, simply an accident, due to improper fitting of the brace to the patient's spine.

Dr. Whitman replied that he thought the apparatus exerted all the pressure that the skin would bear, and that by slightly modifying the curve of the uprights, the defect noticed by Dr. Shaffer would disappear. His object in presenting the apparatus was to elicit a discussion on the question, whether or not it was desirable in this particular class of cases, to attempt to control the forward movement of the shoulders.

BOND'S OPERATION FOR TALIPES VALGUS.

Dr. A. M. Phelps presented a young man whom he had been treating for a number of years for a very severe case of talipes valgus. Almost all methods had failed to give more than temporary relief, although in one instance there was no relapse in the case for a whole year. The patient constantly wore a support for the arches during the time.

The patient sought for relief not so much on account of the deformity, as because of the severe pain which he suffered, and which prevented him from standing on his feet; without shoes, he could hardly walk. His occupation was printing.

In conversation with Dr. Bond, of Westminster Hospital, London, Eng., Dr. Phelps had learned of the operation, which in its author's hands had been successful.

The operation performed by Dr. Bond was for the purpose of relieving the pain, which it certainly does. He alluded to the operation as "firing," the same as is done for the relief of spavin in a horse.

The operation consists in making transverse incisions with a Paquelin cautery, beginning at the inner malleolus, and extending one-third of the distance across the sole of the foot, cutting through the cellular tissue down to the muscles. About four of these incisions suffice. Two semi-circular incisions are made, crossing the transverse ones. It seemed to Dr. Phelps that if the arch of the foot, before the operation is performed, were well shoved up in place, and held with plaster of Paris for a few weeks, that the shortening of the tissues in the sole of the foot by cicatricial contraction, would be more effectual, and would hold the arch in the normal position.

The operation when applied in this manner for the purpose of shortening the girders of the arch of the foot, is identical in principle with an operation which Dr. Phelps performed and reported to the American Orthopedic Association in 1889

One objection which has been urged against the open incision method for talipes equinus, is that the scar is quite likely to be sensitive, and it is interesting to note that in this case, the amount of the scarring being considerable, the patient walks upon the scarred tissues without any pain, and is able to work at his trade. The only support to the foot needed, is an ordinary shoe slightly thickened on the inner side.

Dr. R. H. Sayre said that the amount of pain experienced in these cases of flat foot bears no relation to the amount of deformity. This patient's foot is still turned outward, and as in many other cases, when the foot is brought into the normal position, there is a very noticeable involuntary twitching of the peroneal muscles. The patient had been made comfortable once before for a period of a year, so that it was entirely too soon to say that the case would not relapse. As the arch of the foot is in large part maintained by the deeper structures, it seemed doubtful whether the scar tissue, which did not go beneath the muscles, would be sufficient to hold up the arch, although at present it did this very well.

Dr. A. B. Judson said that in view of the well known fact that cicatrices after burns contract persistently and with great force, the operation was not only ingenious but quite likely to prove successful.

Dr. Whitman thought the operation absurd and extremely unscientific. No case of flat foot is cured until the important movement of abduction is perfectly free to its utmost limit. In the present instance, abduction is not possible, and the case is only relieved, not cured. The only way to cure flat foot is by increasing the power of the muscles which support the weak portion of the foot.

Dr. Halstead Myers said that as the pain in flat foot is largely due to periostitis about the attachments of the ligaments involved, and in the joint structures themselves, this operation with the Paquelin cautery might act beneficially by counter-irritation, just as it does in many cases of joint disease elsewhere. Relief from pressure during the healing of the wound, was also an important factor in the cure.

The President stated that if this procedure of Mr. Bond gave permanent relief from pain, that it would constitute a valuable accessory to our methods of relieving this troublesome symptom. In working people, in whom this deformity occurred most frequently, the question of a perfectly formed or perfectly acting foot was secondary. What patients wanted was first, relief from

pain, and secondly, feet that would give them an opportunity to earn a livlihood.

Dr. Phelps, in closing, said that the case was not presented as a cure for the deformity of hallux valgus, but that the flat feet seemed to be cured.

He had never observed periostitis in cases of flat foot, but he had frequently seen inflamed medio-tarsal joints, the result of pressure, and even the growth of new bone about the joints precisely as is seen in severe forms of lateral curvature.

The scaphoid bone is really the key-stone of the arch, and when it is dislocated downward by the lengthening of the tissues in the sole of the foot, it causes great pressure. The patient will experience pain. This pressure long continued, results in inflammation and growth of bone about the joint.

He thought it more scientific to shorten the girders of the sole of the foot than to do an osteotomy.

A CASE OF MULTIPLE JOINT DISEASE.

Dr. R. H. Sayre presented a little boy who had had a strange combination of diseased joints, without any rheumatic history.

When about two years old, the boy had a severe attack of scarlet fever, which was followed by an ischio-rectal abscess and a double otitis media, which still continues. About ten months after the attack of scarlet fever he fell, and shortly afterward the left knee became swollen and tender. A splint was applied, and the knee soon appeared well. Shortly after this, the right knee and the right hip-joint became successively inflamed. He was then treated for about a year by traction, first in bed and afterwards with a long traction hip splint. After this, the left knee, the right knee, and the left shoulder became successively inflamed, and so severe was the inflammation in the shoulder, that at one time it was almost completely anchylosed. In 1888, after an injury, the right knee and right hip became swollen and tender, and it was at this time, that the case first came under his observation. After the flexion had been overcome, a splint was applied, which produced traction on both the knee and hip-joint. Photographs were exhibited, showing the case with the splint applied. Last July it was considered safe to remove the splint. At present he has no pain; extension is good, and flexion can be made to a right angle. There is almost perfect motion at the hip-joint. He had looked upon the joint lesions as probably tubercular, but it was possible they were metastatic.

Dr. H. L. Taylor did not believe the joint lesions were tubercular.

The President also thought the whole clinical history pointed away from tubercular disease, and that the scarlet fever had probably given rise to a rheumatoid condition.

Dr. A. M. Phelps said the trouble was either rheumatic or metastatic, and as the joints did not suppurate, the former was the more probable origin. While the application of the splint probably assisted in bringing the case to so favorable a termination, it was quite likely that constitutional treatment alone would have been sufficient. He had been misquoted with reference to the occurrence of flexion at the hip-joint. Where the *whole* number of cases have been reported, he believed the statistics would show that not five per cent. have recovered without angular deformity; yet he believed that not one single case of hip-joint disease need recover with angular deformity.

Dr. Sayre said that it was not material to this discussion whether the joints were tubercular or septic. The point he desired to bring out was that, no matter what the nature of a long-continued inflammation of a joint, protection of that joint is necessary. He agreed with Dr. Phelps that no case of hip joint disease ought to have angular deformity.

AN UNUSUALLY SEVERE CASE OF CONGENITAL LATERAL CURVATURE.

Dr. R. H. Sayre presented such a case. The patient is now fourteen years of age, but her mother says that at birth the deformity was nearly as great as now. It was one of the most severe congenital cases he had ever seen, and she first came to him one week ago. Examination at that time showed that between the lower and upper ribs was a large V-shaped gap, through which the liver could be felt. At the age of six years, she had pneumonia, and shortly after this, an abscess, which was probably connected with the pleura, opened through the right thoracic wall. Her breathing is puerile; there is no cardiac lesion. At the time of her birth, the child presented transversely, and the labor was difficult, so that it is possible that this may have had something to do with the deformity. He thought all the ribs were present. When first seen, her height was four feet six and three-quarters inches, but after being suspended, there was a gain of five-eighths of an inch. He desired to call particular attention to this increase in the height as the result of the suspension. In another case, between September 5 and October 15, there has been a gain of three-fourths of an inch; in another, there was also a gain during a month of treatment of three-fourths of an inch, and in still another, which measured before treatment four feet nine and seven-eighths inches, the measurement after about a month was five feet one and one-eighth inches.

Dr. H. W. Berg said that the mere fact that the patient had such excellent use of her limbs

would show that the curvature was not due to a lesion of the brain or spinal cord. If the ribs were congenitally absent, there would be sufficient cause for the curvature without supposing any injury during labor.

Dr. Judson remarked that the case was an illustration of the fact that in lateral curvature the kyphosis is sometimes very considerable, and may be as serious as in Pott's disease.

The President said that some years ago he had called attention to the frequency of lateral curvature in very young children, most of which he believed to be of congenital origin. He had repeatedly urged the necessity of the careful examination of infants' spines, as a matter of routine, and thus, were deformity present, an early opportunity for treatment. He believed that were this done, we should not see such distressing deformity as Dr. Sayre had presented. Quite recently, Dr. F. Beely, of Berlin, had pointed out that in these early cases of scoliosis, the bones of the head were not symmetrical. The case just presented was instructive as showing how great may be the deformity in cases which have not had the benefit of early and judicious treatment. Notwithstanding the deformity develops very slowly, so many cases apply for treatment with the deformity well marked that he was inclined to believe that a large proportion of all cases of scoliosis in children are congenital.

Dr. V. P. Gibney presented a case of hip disease showing

A REMARKABLE RECOVERY BY NATURE'S METHODS.

A boy of eight years was admitted to the hospital in 1882 with disease of right hip in second stage. Family history tuberculous. Disease dated back to the previous April. On admission he was fairly nourished, hip flexed to 100°, and held in this position. *Practical* shortening of three and three quarters inches. On July 7, 1883, flexion had increased to 135°, and an abscess filled the whole gluteal region. On October 12 the abscess opened. November 16 he had become greatly emaciated, pale and waxy, the thigh acutely flexed on the abdomen and abducted, the head being apparently dislocated on the dorsum, while the whole thigh, from the junction of the lower and middle thirds to the trochanter major, was undermined, and large quantities of pus were discharging from two sinuses. Could only sleep with the aid of two drachms of the U. S. solution of morphia, and his condition was so bad that it was thought there was no chance of his recovery, and he was advised to be taken home. On the 27th of November he was visited by a member of the house staff, who found him suffering from diarrhœa and night sweats, with poor appetite, a pulse of 130 and a temperature of 101°. On the 7th of December his condition was about the same, except that a bed-sore, as large as a half dollar, had formed over the trochanter on the sound side. Not seen again until October 14 of the present year, when he returned, looking hale and hearty. He said that after leaving the hospital, he had been confined to bed for one year and a half, and had then begun to go about on crutches. For the past four years he had been wearing a five-inch high shoe. The site of the old abscesses and of the bed sores are marked by very large cicatrices; the angle of greatest extension is 100°, and that of greatest flexion, 90°; the adductors are very tense. His measurements are as follows: R. A., 27½; R. U., 30; R. T., 6 in. down, 13½; R. K., 12; R. C., 10¼; L. A., 29; L. U., 36; L. T., 6 in. down, 17¼; L. K., 13; L. C., 11¾.

THE NECESSITY FOR EARLY MECHANICAL TREATMENT IN INFANTILE PARALYSIS.

Dr. W. R. Townsend read a paper with this title, calling attention to the various stages of the disease, the methods of making a prognosis as to return of power and as to deformities resulting, and demonstrating the value of mechanical treatment in all stages, but especially in that before the appearance of deformity as a method of prevention.

Dr. H. W. Berg called attention to the importance of avoiding heavy apparatus, which often seriously interferes with the paralyzed muscles. In addition to this, all such apparatus should be applied from a *healthy* fixed point of support. One of the most troublesome symptoms in long-standing cases of infantile paralysis is the low surface temperature. He had given relief in two recent cases by wrapping the limbs at night in cloths wrung out of ice-water, and covering these with warm bedclothes.

Dr. Whitman said that the author spoke of equinus and equino varus as the most common deformities in untreated cases. Equino-valgus he thought to be the most common deformity in treated cases, and it was very difficult to prevent.

Dr. Shaffer said that in the fourth stage, where contractures occur, and paralyses are very pronounced, he had met with a very surprising series of cases. He had records of four cases of equinus in adolescents and adults, where the anterior tibial muscles and the quadriceps extensor femoris were involved, and the patient sought relief on account of the deformity of the feet. He had, by means of his antero posterior traction shoe, restored considerable power to these muscles. Another important point was the improvement in the nutrition of the feet resulting from this traction. One patient used to come periodically, as she expressed it, to "get her feet warm." Not only would the feet get warm

during the application of the traction, but they would remain so for the rest of the day. He had never seen such results follow the use of electricity and massage, and similar methods of treatment, with or without tenotomy. Of course, in calcaneus cases, this traction cannot be applied, and hence these desirable results cannot be obtained. The cause of the improvement seemed to be the peripheral nerve irritation occasioned by the traction, exerted principally upon the gastrocnemius and all the other resisting tissues. He had known the calf circumference to increase half an inch by actual measurement, during a month of this treatment.

Dr. R. H. Sayre thought that one explanation of the increased power of the quadriceps extensor could be found in the fact that the feet were placed in a position where they can be used more advantageously.

Dr. Judson considered the paper worthy of much attention, and it was a matter of congratulation that the profession at large already recognized the importance of sending these cases to orthopædic surgeons.

Dr. H. L. Taylor thought that we might go even further than the author, and state that a very large majority of the deformities of the lower extremities are preventable by proper orthopædic treatment. A very badly deformed foot from slight paralysis will often prevent the use of many muscles, and even where muscular power cannot be restored, proper mechanical treatment will often secure to the patient very respectable locomotion. Mechanical treatment, by enabling the patient to go around more naturally, will often increase the warmth of the limbs, but for very bad cases, he had for a long time made use of hot, dry air, or of two woolen stockings, one underneath, and the other over the brace, to keep up the proper temperature of the parts.

The President said that it was a popular idea that braces tend to bring on increased weakness of limbs, and various disorders, and until recently, the great obstacle to beginning mechanical treatment in the early stages, has been the opposition of parents and of the attending physician. Within the last year, he had seen two or three cases quite early, and had noticed a stage of tenderness, which might possibly prove a temporary contraindication to mechanical treatment. He did not think this condition had been mentioned very generally by orthopædic writers.

Dr. Whitman said that he had many times met with this condition.

Dr. Townsend, in closing the discussion, said that he thought much of the opposition to braces arose from the fact that orthopædic surgeons were not agreed among themselves as to what kind of apparatus was most suitable for the treatment of the different classes of cases. He desired to emphasize the importance of that part of the paper which refers to the experiments of Mr. Young on electrical examinations of muscles. If, by such an examination, one could ascertain that, in a given case, contractures and deformity would result, the task of persuading parents to allow their children to receive early orthopædic treatment would be a much easier one than now.

Medico-Legal Society of Chicago.

CHEMICAL CONSIDERATION IN POISONING.

Presented before the Medico-Legal Society of Chicago, Oct. 3, 1891.

By C. D. WESCOTT, M.D.

(*Concluded from page 774.*)

Arsenic is still an ingredient in the coloring matter of a great many articles which children constantly handle; it is used in the coloring of decorative paper and cardboard, in the coloring of children's toys, in crayons, in the coloring of candles which are used on Christmas trees; it is found in many patent medicines, in rat and mice poisons, all of which are left lying about in the most careless way, and it is truly wonderful that there are not more cases of poisoning.

Another point I would speak of, is in regard to the organs which should be selected from a dead body supposed to have died from arsenical poisoning to be sent to the chemist. Different investigators have not agreed as to which organs contain the greatest amount of arsenic, but it is well established that the stomach and its contents, a portion of the liver, the kidneys and a portion of the brain and spinal cord should be submitted in all cases where possible. A portion of the brain should always be obtained, as it contains the largest percentage of arsenic in many cases, though it is said by some investigators that the spinal cord contains the greatest relative quantity.

In regard to the antidote, I believe we should all have an old disused bag in which we could constantly keep a stomach tube, some of the more important antidotes and restoratives, that we could pick up and run with in an emergency. The most convenient substance from which the antidote for arsenic can be prepared is a solution of ferric chloride, two ounces to an ounce of ordinary sodium carbonate or washing soda; the latter can be quickly dissolved in warm water, and the solution of ferric chloride can be added, and we have a mixture which we need not strain or fuss with, but which can be given to the patient at once.

I have little to say in the way of discussion of the papers that have been read. Dr. Nelson referred to Fowler's solution as an antidote for snake poisoning. I think if I were bitten I should prefer to trust to the common antidote, whisky. Dr. Nelson suggested that the coma in arsenic

poisoning might be due to uremia. It occurred to me while he was speaking that possibly it was due to a direct action of the poison upon the brain substance, inasmuch as such relatively large quantities of arsenic are found in the brain post-mortem.

Dr. Moyer's case of Paris green poisoning is a puzzler, but it is no doubt a fact that Paris green is sparingly soluble, and is also a fact that stomachs and intestines differ very much as to their absorptive power and they differ very much as to their sensitiveness, and we would have to consider these facts in making up our minds in regard to this case. While death has been caused by the ingestion of one grain or less, of arsenious oxide, two ounces have been taken into the stomach, and recovery followed.

THE PATHOLOGICAL ANATOMY OF ACUTE ARSENICAL POISONING.

Read before the Chicago Medico-Legal Society, Oct. 3, 1891.

By DR. LUDWIG HEKTOEN, of Chicago.

In this communication only those anatomical changes that may be caused by acute arsenical intoxication, and are susceptible of demonstration in the fresh cadaver, will be considered.

While the frequency of poisoning with arsenic is steadily diminishing in certain European cities and countries, this mode of terminating life appears to be quite popular in this city. Of 431 cases of fatal poisoning investigated at the Medico-Legal Institute, Berlin, during the years 1876, 1877 and 1878, only eight were instances of arsenical intoxication; of 120 cases of suicide examined in Vienna during 1874 and 1875 only two had selected arsenic. In France, in 1857, arsenic was the poison employed in 35 out of 63 murders by poisoning; in 1860 it was used only 3 times in 32; in 1862, 5 times in 38.[1] Of 47 cases of acute poisoning admitted into the Cook County Hospital,[2] in Chicago, 1890, 8 were instances of arsenical poisoning. In 59 cases of poisoning investigated by the coroner of Cook County[3] during the year 1890, 32 were due to arsenic; of the 59 cases 54 were suicides; 5 murders all due to arsenic; two of the murders to the mixture known as "rough on rats," 2 to arsenic in solution, 1 to Paris green. In 23 out of the 27 suicidal poisonings with arsenic "rough on rats" was used. One, and perhaps the principal reason, for this astounding frequency of arsenical poisoning here is undoubtedly the ease with which the poison is obtainable. Any child can be sent to a drug or grocery store for unlimited quantities of arsenic in the mixture called "rough on rats."

What destructive action arsenic in this form may produce upon the red corpuscles, and the occurrence of thrombosis in the capillaries and larger vessels would certainly explain the hæmorrhages, some of the areas of necrosis and degeneration, as well as many of the clinical symptoms observed in cases of arsenical poisoning. This phase of arsenical poisoning will undoubtedly be subjected to future and fruitful investigation. It at once suggests itself that the microscopic demonstration of capillary thrombosis in a suitable case of supposed arsenical poisoning would go far to settle the question of ante- or post-mortem introduction of the poison in case doubt should arise on this point.

In order to bring before you the anatomical changes of acute arsenic poisoning I shall take the liberty to briefly describe the post-mortem appearances in two or three instances.

Case 1. Poisoning with "Rough on Rats."—This occurred in a family of four and was due to the sprinkling of "rough on rats" upon the corn eaten at the fatal supper. The father died about twelve hours after the poisoning, the mother, eighteen; in both the clinical symptoms were quite classical.

The post-mortem examination was made twenty-four hours after death. The appearances were quite similar in both, hence only one description is necessary at this time. The external appearances were absolutely negative except that the man's skin was yellowish; the facial expression was not indicative of any special emotion. The peritoneal cavity was empty, the peritoneum normal; the stomach was dilated in both instances, hanging low down; the subserous veins were moderately filled with blood; in each case the stomach contained about twenty-four ounces of turbid watery fluid of negative odor; the mucous membrane was rather pale, opaque and somewhat swollen, but in the cardiac and pyloric regions were punctiform and linear hæmorrhages and extensive areas of capillary hyperæmia. The commencement of the duodenum was quite uniformly red, the mucous membrane swollen; in the entire small intestine the valvular conniventes are voluminous; in the upper part are irregular areas, greyish white in color, surrounded by a red border; these areas are due to a false membrane, which can be peeled off, leaving a small area of necrosis with much capillary injection and hyperæmia. In the lower part of the ilium is much swelling of the solitary and of minute glands, but no croupous areas. The large intestine, as well as the small, contain fluid contents, greyish, turbid and full of shreds; the follicles are swollen in the upper part. The shreddy masses in the gastric and intestinal contents contain microscopically epithelial cells, round cells, mucous corpuscles and octahedral crystals of arsenic; in the rectum octahedra are found with ease.

[1] Casper-Liman, Handb. d. Gerichtlieben Medicin, 8 ed., 2 Vol., i, Berlin, 1889.
[2] Mitchell, Cook County Hospital Reports, Chicago, 1890.
[3] Hertz, Report of Coroner of Cook County, Ill., 1891.

The mesenteric glands are larger than usual. They are soft, and pale-red on the cut surface. The pancreas and spleen are normal in both cases.

The kidneys are also apparently normal, except some capsular adhesions in the man. The liver is about normal in size; on the cut surface the lobules seem large, but the outlines are indistinct, the color yellowish. The heart is of normal size. In both cases there are subendocardial areas of blood extravasation in the left ventricle. The myocardium is pale yellowish-gray; it is comparatively flabby, and teased specimens show indistinct transverse striæ. The lungs are œdematous, pleuræ smooth and shining. The brain and the membranes are apparently normal. The pharynx, œsophagus and larynx upon chemical examination showed abundant arsenic in the gastric and intestinal contents, in the liver and in the kidneys of both the man and the woman.

To recapitulate: In these two cases solid arsenic, in the mixture known as Rough on Rats, produced, in twelve and eighteen hours, acute parenchymatous gastritis, acute croupous enteritis with hæmorrhages and capillary hyperæmia, acute follicular enteritis, swelling of the mesenteric glands, cloudy swelling of the liver and of the myocardium, and subendocardial ecchymoses.

Case 2. Arsenical Poisoning.—A wealthy family near Maplewood, in this city, was mysteriously poisoned with arsenic in the early summer of 1890, the father and a man-servant dying. This is the sensational Kuhn tragedy and mystery. The arsenic, probably in solution, was placed either in the coffee or in some pie, or in both, and in spite of appropriate treatment, the cases having been correctly diagnosed ante-mortem by Dr. T. J. Conley, the servant died in twelve hours, and the father in twenty-four. In both these cases, the changes differed considerably from the previous, hence a brief description of the autopsy of the servant will be permitted. It was made ten hours post-mortem. The body was well-nourished, muscular, about 35 years old. There were no external marks of violence. The peritoneal cavity was empty and the peritoneum normal. The stomach was somewhat dilated, and hanging low down, it contained 20 ozs. of grayish, granular fluid; the mucous membrane is very much swollen, covered with large flakes of viscid mucus; its tissue is the seat of innumerable hæmorrhages, occurring singly and in crops—these hæmorrhages occupy the summit of the folds as well as the depressions between them. The submucosa is swollen also, and distended with clear fluid. The contents of the duodenum are watery, its mucous and submucous coat are greatly swollen, and here and there are occasional hæmorrhages. The jejunum and ileum contain about 18 ozs. of faintly yellowish fluid, which looks like rice water. The swelling diminishes from above downward, while the solitary and agminate follicles are considerably enlarged near the ileo-cæcal valve. The mucous membrane of the large intestine is pale, not much swollen, covered with strands of mucus; the contents rice-water like. The mesenteric glands are swollen. The liver shows indications of cloudy swelling. The kidneys seem normal. The respiratory organs and the upper parts of the intestinal tract are intact; the heart shows nothing abnormal, and the brain and its membranes show no structural changes.

Arsenic in abundant quantities was demonstrated by Prof. Haines in the gastro-intestinal contents, and in the liver and the kidneys.

To recapitulate: In this case the changes consisted of acute catarrh of the stomach and the small intestine, with œdema of the gastric and duodenal submucosa, hæmorrhages, follicular swelling, and a simple acute catarrh of the large intestine, with a commencing parenchymatous degeneration of the liver.

Case 3. Suicidal Paris Green Poisoning.—An old man swallowed a quantity of Paris green, and died in about ten hours. Autopsy in ten hours. Lips livid, skin over face pale, mouth and œsophagus normal, mucous membrane of pharynx swollen and quite red. The stomach is considerably dilated with gas, and fluid of a bluish or greenish tint; upon the inner surface are masses of mucus with green particles in it. The mucosa is greatly swollen and thrown into numerous folds, in it are numerous hæmorrhages, the free surface of which appears eroded. The contents of the small intestine show particles of green throughout the entire extent; the mucosa is much swollen, in some places opaque areas of varying size and form, with slight superficial loss of substance, can be observed; one of these areas is about 3 inches long, but does not include in all its parts the entire mucous membrane. In some parts there are fine hæmorrhages in the vicinity of these areas, and there is a general capillary hyperæmia. The solitary glands are markedly prominent, but the increase in the Peyer's patches is not so marked. In the cæcum the poison is macroscopically visible, but not any further into the large intestine, the mucous membrane of which is pale and free from corrosion. The liver measures $25 \times 18 \times 16 \times 6\frac{1}{2} \times 3\frac{1}{2}$. It is very flabby, the capsule is smooth, the parenchyma is brownish in color, with yellow spots, and the lobules are enlarged, with indistinct outlines and a congested centre. The kidneys are of about normal size, in the cortex are found numerous pin head size hæmorrhages. The mucous membrane of the ureters and of the bladder is swollen, and shows a few ecchymoses. The myocardium is opaque, yellowish-red, and underneath the endocardium of the left ventricle are many extravasations. The lungs and pleuræ are quite normal, ditto brain.

Recapitulation.—Acute gastro intestinal catarrh with hæmorrhage, erosions and capillary hyperæmia; acute parenchymatous nephritis with swelling of and extravasation into urethral and vesical mucous membranes; acute parenchymatous myocarditis, subendocardial extravasation.

If we now pass in brief review the various changes that may be produced by arsenic it will at once become very evident that they are exceedingly fitful and freakish, subject to marked variation in intensity and extent, not bearing a constant relation to the quantity introduced nor the time elapsing between the ingestion and the fatal end, so that a general description of all the changes that may be produced would rarely apply to a single concrete case.

Commencing with the mouth and the upper part of the digestive tract, it may be said as a general rule that arsenic does not produce any changes upon the mucous membrane of the pharynx and œsophagus, when taken in its usual form, although Woodman and Tidy[4] state that congestion of the gullet, mouth and windpipe from the application of the poison during vomiting, is general. Externally the stomach and intestines do not usually present any changes, although it is usual to find the stomach somewhat dilated with gas and fluid, but the serous surface is almost always smooth and shining while the amount of blood in the subserous veins may vary within wide limits; the authors just quoted state that inflammation of the peritoneum is occasionally found, but except in very rare cases where it is secondary to perforation of the stomach, this does not seem to have been described by other reliable observers. The contents of the stomach are usually a little bloody with considerable adherent viscid mucus; the mucous membrane is usually swollen, in some places it may be markedly opaque and greyish yellow in color. The epithelial cells under the microscope showing typical parenchymatous degeneration; at times it may be the seat of areas of capillary injection and hæmorrhages, especially in the cardiac and pyloric regions, and small areas of necrosis can be observed on the surface of the hæmorrhagic districts; then there may be croupous areas, that is, places covered with a more or less easily removable greyish membrane, which microscopically shows a fibrinous network entangling mucous corpuscles, epithelial and round cells and, often, octahedral crystals of arsenic; the submucosa may be doubly thickened from œdema; perforation and gangrene are very rare occurrences, but cases are stated to be on record. Similar processes may continue into the duodenum and a considerable distance into the small intestine; usually the contents of the small intestine are rice-water like; the mucous membrane may show catarrhal enteritis, areas of croupous inflammation together with hæmorrhages, districts of capillary hyperæmia and areas of necrosis and erosion; the follicles, solitary and agminate glands may be and very frequently are enlarged either from œdema or from cell multiplication. The mucous membrane of the large intestine is also often the seat of a catarrhal or follicular enteritis with swelling of the mucosa, and the production of viscid mucous; octahedrals may be found microscopically, and Woodman and Tidy state that the rectum is invariably the seat of an acute inflammation, a statement that seems to me to be too sweeping.

Simple hyperæmia of the intestinal and gastric mucous membrane is exactly similar in appearance, whether it owes its existence to physiological or to pathological conditions. The differentiation will depend upon the nature of the secretion and upon the appearance of the interstitial tissue and the lymphatic apparatus. Acute gastric catarrh is always accompanied with the production of a viscid, glairy, clear mucus; acute intestinal catarrh results in the outpouring of a considerable amount of watery fluid; an acute catarrh of the large intestine, on the other hand, again leads to the production of viscid mucus. If a few hours pass between the commencement of the inflammation and death, and especially if the irritant be of some intensity, it nearly always leads to inflammatory œdema of the mucosa and submucosa, and to considerable increase in the size of the regional lymphatic glands.

The hæmorrhages and the hæmorrhagic erosions will be more marked in cases of severe and prolonged vomiting, and in cases of poisoning with arsenic in a solid form. The hæmorrhagic necrosis is probably in part due to the production of capillary thrombosis, as shown by Silbermann;[5] from its point of arrest in the stomach or intestine, arsenic is absorbed into the capillaries and lymphatics; here it causes thrombosis, and a consecutive hæmorrhagic necrosis may follow, the tissue succumbing completely to the action of the gastric juice and to the attack of intestinal microbes. The croupous exudate seems to be formed only when solid arsenic has been taken; Lesser[6] states expressly that he has never observed it except in such instances, but not invariably even then; this is a point of some practical importance.

The mesenteric glands are usually swollen, red and soft, partaking of the general regional lymphatic enlargement.

Cloudy swelling and fatty degeneration are found frequently in the liver, though Woodman and Tidy[7] state that no post-mortem appearances are found in this organ, but Lesser[8] and Caspar[8] have observed such changes in eighteen, in nine

[4] Forensic Medicine and Toxicology, Philadelphia, 1887.

[5] Virchow's Archiv., Band. 117.
[6] Atlas der Gerichtlichen Medicin, Berlin, 1888.
[7] Loc. Cit.
[8] Text-Book of Path. Anatomy and Pathogenesis, New York, 1887.

and in seven hours, the liver being flabby, increased, perhaps, in size, the parenchyma being opaque and brownish, with yellow areas, enlarged lobules with indistinct outlines, congested centers, and pale, cortical zones; microscopically, the cells are large and granular, with indistinct nuclei; acetic acid may dissolve some of the granules, and boiling alcohol and ether others. According to Ziegler, various poisons, such as phosphorus, arsenic and the ferments which produce fever, may, like imperfect oxygenation, lead to disintegration of the albumen of the tissues, and so to fatty degeneration.

The kidneys may show no changes at all, or they may be seat of parenchymatous degeneration and small cortical hæmorrhages, the urinary sediment corresponding exactly to that in acute nephritis generally; the ureteral and vesical mucous membranes may also be swollen, and show hæmorrhagic extravasations in occasional instances.

The heart is often the seat of a parenchymatous myocarditis, especially of the muscles of the left ventricle, which are soft and flabby in consistence, grayish-yellow in color on the cut surface, and under the endocardium of the papillary muscles, the microscope showing typical cloudy swelling in the muscle fibres. Underneath the endocardium, especially if not exclusively of the left ventricle, are very frequently found small, irregular shaped, but typical areas of hæmorrhagic extravasation similar to those observed in cases of asphyxia.

Any changes in the lungs directly referable to the action of arsenic cannot be said to occur, except that subpleural hæmorrhages are found quite often. The brain and spinal cord and their membranes are usually negative on microscopic examination, although the arsenic accumulates there in greater quantities than in the other tissues of the body. Arsenic produces well-marked changes in the nerves, the further consideration of which does not belong here. The blood is stated to be dark in color, and to coagulate feebly, and imperfectly collecting in the heart and the large veins, no thick, firm and solid clot being formed. In connection with this, it is interesting to note the experiments of Silbermann,[9] who, by means of injections of various poisonous substances, and among them, arsenic, into animals, came to the conclusion that many of the clinical phenomena and anatomical changes in arsenical intoxication are directly referable to the power of arsenic to cause a vascular dyscrasia resulting in primary capillary thrombosis, with the formation of secondary stagnation thrombi; he observed the formation of capillary thrombi and antochtonous thrombi in smaller vessels, especially veins, and even in the heart, in animals which were injected with arsenical solutions and vivisected during the violent symptoms of poisoning that soon followed, arsenic acting as a typical blood poison.

9 Virchow's Archiv.

THE LEGAL ASPECTS OF ARSENICAL POISONING.

Presented before the Medico-Legal Society of Chicago, Oct, 3, 1891.

By the Hon. C. G. Neely, (Assistant States Attorney.)

The papers which have preceded what I wish to say have dealt with the question of arsenical poisoning from its medical manifestations, and with scientific truth, not theory but fact. After listening to the papers and remarks made here this evening it is not strange to me that it is so difficult to prove murder by arsenical poisoning.

In viewing arsenical poisoning from a legal standpoint you will have to understand one or two things: Every crime on our statute books is characterized by certain essential and necessary elements, which, as a matter of course, must be proved and which generally are capable of proof; not that proof can always be made, but proof is possible. For instance, you take a case where the charge is larceny, we speak of it as larceny as lawyers, it is simply stealing, and the gist of the larceny or stealing is to be taken as contradistinguished from accident, mistake or the like. The gist of burglary is the entering into any building with force or without force, with the intent to commit a felony or larceny. The gist of murder is malice, the unlawful killing of a human being with malice aforethought.

So you can see from these illustrations that what a prosecutor must do is to prove what he charges. You gentlemen of the medical profession dealing in scientific truths as you are, are not content with theory at all. In that respect the legal profession meets you and greets you. It is one thing to charge an offense and it is another and entirely different thing to prove it, I do not care whether it is a charge made in the form of an indictment in a criminal proceeding, or whether it is a libel on the street or anywhere else. The older men grow the more they learn; it is one thing to assert and another thing to prove. Truth and evidence get mixed. I presume that lawyers and courts have as much trouble in making the laity, if I may so term the uninitiated, understand the difference between evidence and proof as physicians do with having the people among whom they practice understand the difference between a genuine and thoroughly educated medical man and an advertising quack.

Evidence is that which tends to prove a thing, a means by which proof is established, and proof is the natural, logical result of evidence. And oftentimes lawyers are annoyed, particularly those of the prosecution, by people saying, "Why, this was proved." It was not! It was attempt-

ed to be proven and failed, but they did not know the difference. When a prosecutor begins a case where there is a charge made that death has been occasioned by poisoning, or an attempt had been made to occasion death by poisoning, he is put very much in the same position as a physician or surgeon when called to the operating table or sick room. The first thing the physician has to do is to diagnose the disease, in other words find out what is the matter. The physician calls it diagnosis, the family asks, what's the matter, they mean the same thing. The lawyer when he commences a prosecution on a charge of arsenical poisoning, or death by any poisoning, must at once determine what means he shall use to get at the truth. Now it is easy ordinarily, when a crime is charged, to find some circumstance connected with the perpetration of the offense that at least indicates where the truth lies. But when you take a case of arsenical poisoning the very statement of the charge indicates the manner of the procedure; the plain English of it is, this man was killed by being poisoned with arsenic, prove it. How are you going to begin to prove it? You have heard tonight what these gentlemen have said who understand medicine and the treatment of disease. I cannot speak on that question at all, but when you begin to cast about for a line of procedure in the prosecution of a case of that sort, the first thing to be done is to prove that the person is dead and was killed by poison. If the indictment charges arsenical poisoning and you prove any poison, that is sufficient. If death was caused by poisoning, the question arises, what poison? Suppose you suspect arsenic, you can see the legal profession is at once thrown right into the hands and arms of the medical fraternity. The whole proof in a poisoning case rests on the medical profession. It is not enough to say that a man is dead, that he did not die of natural disease, that there was no violence used upon him. It is not enough to say that some person had motive enough to kill him, or that some person threatened to kill him, nothing will suffice except to prove that he was poisoned, and that beyond a reasonable doubt. Not by mere preponderance of the evidence, not by mere suspicion, but what was actually the fact beyond a reasonable doubt. The first question then is, was the drug used a poison, a noxious drug? Who can tell that? Lawyers can't tell it, the ordinary witness cannot tell it. If it is a burglary case any witness can tell what was done; it does not take expert testimony to prove that a revolver is a deadly weapon, but in this sort of case the first thing is, was this drug a deadly poison, and it requires an expert to prove it, some one who understands the drug. In beginning his examination the physician stands very close to the lawyer. He looks into the stomach, liver, kidneys for poison and he finds it. Without taking more time he is satisfied that this poison is arsenic or some noxious drug, then the question arises immediately, how was it administered. A man shoots another and people can say, he shot him, he stood up and shot him, said he was going to shoot him. This is easy. But how was that poison given, who administered it, is the great question for proof from a legal standpoint, in a case of poisoning. There comes the expert again, the physician or the chemist, and when he begins to determine how it was administered he calculates first on the amount given, whether or not it was an overdose imprudently taken by the person himself, or whether it was an accumulation of proper doses given at regular intervals, having massed together and occasioned death. The traces left in the organ itself usually throw some light on the subject, and in those cases where death is instantaneous, as from prussic acid, the position of the body throws great light on the question as to whether it was self-administered or not. The first question is, was there poison enough to kill, then did the man take it to kill himself or was it administered by somebody else. Suppose the quantity negatives the thought that it was self-administered, then the question is, who did administer it? The ordinary laws of proof come in there. Suppose it is admitted by the defense that he did administer it, but in the proper way and for proper purposes. Suppose it is claimed that it was given accidentally by a person unacquainted with the drug. Suppose it is contended that it was given by a physician acquainted with the drug, or by some one else who understood the drug, but by mistake too large a quantity was given. If it is admitted that the defendant, or accused person gave it, but he claims that he did it properly under medical advice and direction, then is it proper to show that he has poisoned other people. Any legal writer would say that it is never proper to establish any other offense than the one which is being tried. But when the idea is advanced that the poison has been given accidentally, or with good purpose by mistake, it is proper to introduce evidence of other poisonings to rebut the theory of accident, it not being possible that a man should poison one case after another from accident.

It is a singular fact, hinted at in some of the papers to-night, that poisonings do not occur singly, but they are nearly always in a series. A man poisoning his wife began by poisoning his first wife and his child. In the Newland case first the father was taken, then the mother and the children. A person giving a drug which we do not know the nature of, with proper medical advice, from good motives, without wicked intent, would be guilty of manslaughter for carelessness.

After these primary conditions are out of the

way and it is decided that the accused gave the poison, the question arises, how are you going to prove that he gave it? Did he have the article, or did he manufacture it. You look at the materials out of which the poison is compounded. If it is a fact that he has manufactured the drug, it is competent for the prosecution to show that he did and had the vessels for compounding it in his possession. It is competent for him to show that he had them in the line of his business, and that it was nothing unusual for him to make poisons. Another question which arises is this: It is not enough to prove that the man is dead, and that poison was given, but it must be shown that the poison found in the body was put there before death or before the body was exhumed. In a large number of cases the body is buried and suspicion averted. Then, as Dr. Hektoen said, the crime is often buried by the undertaker who has used embalming fluid in the body. If the body is exhumed and examined, then the question comes up, has it been tampered with by strangers. I cite this outline briefly so that you can see how difficult it is to prove beyond a reasonable doubt that a man was poisoned wickedly and maliciously. Now passing to malice, how are you going to prove it? You have got to the point where the medical expert testimony is that the man was poisoned, the drug had been detected, its character is known and the indications are that it was a case of poisoning, not suicide, and that the accused did it, that is proven. You are only about one third started; now the question is, why did he do it? Suppose you show that he did not do it from any good motives, but negative intention does not prove anything. Suppose the prosecution proves that it was done maliciously. Suppose it is the case that the accused went out of his way to be in the company of the deceased, insisted in preparing food for him but abstained from eating or drinking any of that food. I believe it is a fact that in a case of this sort the legal profession always welcomes the testimony of the expert. I suppose it is a fact that when a man dies and you discover arsenic in large quantities even, in the body, the best that can be said is that the strong possibilities are that arsenic caused death, but no man actually knows whether he died from the poison so introduced or whether he died from disease, unless it is a very marked case.

On the question of malice, if it is proved that the person accused administered the poison, that he knew it was a deadly poison; if he disclaims the knowledge and it is shown that he did it, then the inference of guilty knowledge or malicious intent is strong indeed. I presented the Newland case to the jury that tried Mamie Starr for murder. In the presentation of the case the fact that the father, Mr. Newland, died, came out fully, but in that case there were not the usual difficulties occurring. I ought to say in passing that one of the proofs of wholesale malice, one of the proofs of intent that negatives and rebuts the idea of accident, is that the poison employed is one not ordinarily in family use. Not such a medicine as might be easily mistaken, not something that might be given in too large a dose with no intention to harm, but they nearly always employ some medicine that is used for the purpose of attacking life. In the case of the Newlands this girl had gone to the family and staid there through the day. She was kindly treated and had no occasion to find fault; she had no ill will against the family and apparently no motive. I want to suggest that motive and intent are separate and distinct. Motive is that which moves the person to do the thing and leads him to make up his intention. Intent is the purpose for which he does it. So while we do not have to prove motive, it is always of great assistance, but in that case there was apparently no motive. It was proven that arsenic was used, because the girl asked for 25 cents just before supper and went to the drug store to get some toothache medicine. At the drug store she asked for rough on rats, and asked the druggist if he had anything else that would kill rats. He said he had, but that rough on rats was more poisonous and would kill them quicker. She bought a box of rough on rats and some chewing gum, paying 15 cents for them. She asked if she should get supper and opened a can of corn, and, as she herself said, took a pinch out of this box of rough on rats and put it in the corn. She did not taste the corn. The testimony was that they complained of a burning sensation in the roof of the mouth, and thirst, and they began leaving the table, and the mother was up stairs vomiting within 15 minutes of the time she sat down to the table. When the family began to be sick, first the mother, then the father, then the son and the daughter, all that composed the family, this girl was found in a crouching position in the hall, and when the daughter went out and said to her, "Mamie, what did you put in the corn; did you put pepper in it?" she appeared to be terror-stricken, and denied having put anything in it. She disappeared, and when the doctor came and looked around for arsenical poison, the girl could not be found. She testified that she took the box of rough on rats, put it in her apron and threw it away. She said she put it in the corn for the purpose of seeing what the effect would be.

I speak of that case because you can see from the statement what the legal aspects of a case of poisoning are, whether it is arsenical poisoning or any other. I want to say that we are glad to see physicians come into court because their testimony is generally concise and to the point, it is direct and positive, and is not the ordinary

rambling indifferent statement of witnesses which by its very carelessness is confusing. Physicians are known to stand for the amelioration of suffering, and the saving of human life. There probably is no profession known among men where its members stand so close to the home circle as does the physician, the ministry not excepted. The physician stands in the home at birth, in sickness, and in death. The place where the physician as a professional man meets the lawyer on the highest grounds of scientific truth is in a court of justice, where the question is, was the death of the deceased occasioned by poisoning, and if so, what shall be done in order that the crime may be punished and justice done? and it is about the only time and place I know of where a physician is called upon to make a statement or do anything against human life and liberty, and he does it then in the interest of justice.

I thank you, Mr. President and members of the Society, for the honor you have done me in asking me to speak to you and for the attention with which you have listened to my remarks, and I assure you that the work of the physician and lawyer in our courts of justice on the higher grounds of scientific truth is a work that is welcomed by both professions alike.

Discussion of Papers.

Dr. L. H. Metler: I would like to suggest for the consideration of the chemists present, a very shrewd suggestion of Mott, of New York. This question was discussed before the Medico-Legal Society of that city, and he stated that oftentimes the presence of the poison is proved, but the question is, Did the patient die of the poison? Prof. Mott suggested to the chemists that if they could find the chemical or physiological combination between the living protoplasm and the arsenic, it would be a grand discovery, and would throw great light on these cases where there is difficulty in deciding whether the patient died of arsenical poisoning, or whether the arsenic was thrown into the body after death. If such a combination could be found, if the poison were taken during life, some part of the body would show the combination, and would go a great way towards solving the difficulty. I was much interested in Prof. Mott's suggestion, and presented a paper to that Society, in which I showed that if even such a suggestion were carried out, it would be uncertain, because physiology tells us that we do not know just when death occurs in the whole body. Rigor mortis is supposed to be similar to muscular contractions by many leading physiologists, and if that be true, if the arsenic is used in an embalming fluid thrown into the body, there will be a possibility of the combination of protoplasms with the arsenic.

Dr. F. Formanack: I have listened to the discussion of these papers with a great deal of interest. During the last four years I have had about five cases of arsenical poisoning by Paris green, one of which died. In regard to the embalming fluid, I would say that I was called to a case by an undertaker a few days ago, where a man was supposed to have died from taking Paris green. He was insured, and the policy was such that if he had committed suicide the insurance would not be paid, so I was requested by the relatives to make an autopsy. It seems that the coroner had made a post-mortem, and the jury had given a verdict of suicide by taking Paris green. When I got there I found that the undertaker had used this arsenical fluid, so of course it was of no use to make even a chemical examination of the organs. This was a medico legal case where the embalming fluid should not have been used.

Dr. J. J. M. Angear: I remember distinctly that Prof. Blaney, in a lecture upon arsenic, stated that we had better not administer an emetic, or at least not until we had put large quantities of milk and eggs, or something else, into the stomach, to gather up the material, and if the emetic were administered then, we would be likely to get out all the arsenic. Some such fact has come out incidentally this evening, but I would like to bring it out more pointedly. While Prof. Blaney was lecturing on arsenic and using it in solution on his table, by mistake he took up the wrong tumbler and drank it off. He discovered that he had swallowed the arsenical preparation, and asked one of the boys in the class to get him some eggs. He cracked three or four and swallowed them, then went on with his lecture, and as soon as it was over, he went into the laboratory and took an emetic. I carried out that suggestion some time ago. I was called to a woman who had taken arsenic for suicidal purposes. Vomiting had commenced, and I ordered all the milk she could drink. She would swallow a cup of milk and it would come right up; this was done repeatedly, and the result was favorable.

Another point has been hinted at to-night, but not brought out as prominently as I would like to have it—that is, the care with which the material from the body is preserved. I know of one case in the rural districts, where a post mortem was had and the contents of the stomach thrown away, and the stomach put into an old tin can and sent off to be tested. I have known a number of cases where it would have been utterly impossible for an attorney, or a medical man or a chemist, to go before a jury and state positively that there had been no opportunity whatever for a vicious person to put arsenic into the material, and as a matter of course that would vitiate the whole proof.

Dr. H. T. Tillotson: The question of embalming fluid which has been brought up to-night reminds me of a case I had a year ago. A young lady at a party partook of cake, and some time during the night she began vomiting, and had colicky pains, with other symptoms of poisoning, and in about thirty hours she died. I took it upon myself to look after the cake question, and while I was out the undertaker was called in, and embalmed the body. I called him up by telephone to ascertain why he did it so soon, and his excuse was that he was asked by the family to do so. I wanted to know why he did not wait for the death certificate, and he said he never had and never would wait for a death certificate. I inquired of other undertakers, and they claimed the same thing, they will embalm the body as soon as the friends ask them to do so, and will not wait for a death certificate.

Dr. A. W. Baer: About a year ago I was called to see a young man who had taken poison, and as I was called in a great hurry, I neglected to take a stomach pump. I asked for hot water and mustard, but they did not have any, and I sent to a saloon for some mustard. The young man, in the meantime, laid in a comatose condition. I mixed the water and mustard, and attempted to get it down him, but was unable to do so, and thought I had a corpse on my hands. I asked one of the men present to get it down if he could, and I reached for my hypodermic needle, which had some nitroglycerine in it. Without taking very much care, I inserted the needle in the muscles underneath the arm, and the man jerked the arm away from the needle himself, and it took four men to hold him on the bed, to keep him from getting up and killing the doctor. I then succeeded in getting the mustard down. He acknowledged that he took a white powder, which I thought was arsenic, but it was the effect of the nitroglycerine on the comatose condition I wished to call attention to. I think the condition was due to arsenic, and not to morphine, for it was an hour after he had taken the drug, and if he had taken the dose he did of morphine, it would have had a different effect on him.

Dr. Daniel T. Nelson, in closing the discussion, said: I will only speak of one or two points. Dr. Hektoen spoke, I think, truthfully of the contents of the stomach and intestines looking like rice-water discharges, which are familiar to all physicians in cholera, and the appearance of the patient, it seems to me, is so much like cholera as to suggest the question propounded by Dr. Wescott as to whether the arsenic does not affect profoundly the nervous system, as the cholera poison does. I am inclined to believe with Dr. Wescott that, primarily, the coma and convulsions are due to the direct effect of the poison upon the nerve centers of the brain and spinal cord, and hence the paralysis in chronic cases; but possibly, subsequently, before death, there may be convulsions of a uremic character.

In the autopsies described by Dr. Hektoen, one point seemed to me especially characteristic and interesting. The thirst and dryness of the throat and fauces before death have been noted by all; and yet, after death, there is little to be seen of pathological change there, and I believe this is true also in cholera.

One suggestion as to an antidote. Dyalized iron is perhaps as efficient as the wet hydrate of sesquioxide; it is certainly very convenient, and can usually be found in the drug stores; can be used without preparation, and can be given in any dose safely.

The following resolutions were unanimously adopted:

WHEREAS, The science of Forensic medicine at the present time demands such exactness and thoroughness in the post-mortem examinations of medico-legal cases as to always require greater facilities than those presented in a private dwelling or common undertaking establishment; therefore, be it

Resolved, By the Medico-Legal Society of Chicago, that the coroner of Cook County be urged to send all bodies requiring a post mortem examination to the new county morgue, and that such facilities as the importance of the work demands be arranged for in the morgue building, so as to make it as complete a medico-legal institution as possible under the circumstances. And further:

WHEREAS, There are no restrictions upon the sale of arsenic, which often facilitates the commission of crime; and

WHEREAS, The use of embalming fluid containing arsenic by undertakers obscures cases of poisoning by this drug, is not necessary, and causes the miscarriage of justice, it is

Resolved, That the sale of arsenic should be strictly regulated by law, and the use of arsenical embalming fluids should be entirely prohibited.

ARCHIBALD CHURCH, M.D.,
Secretary.

DOMESTIC CORRESPONDENCE.

HOT SPRINGS, ARK., Nov. 10, 1891.

Editor The Journal, Chicago, Ill.:

Desirous of calling the attention of the medical profession to the anomalous condition of things existing at this place, I ask the publication in THE JOURNAL of such facts as are given herewith:

This town is sustained *entirely* by visitors coming here in search of health or pleasure, mostly the former. There is literally nothing else. The facility with which the invalid can be gulled on his arrival here is startlingly wonderful, and opens a very fine field for sharpers, who are nominally in the profession, aided by ropers who meet the victims on the railroad trains and beguile them first to a boarding house and bath house, and finally to the doctor's office to be robbed and maltreated.

This evil has assumed such outrageous proportions, that the few practitioners here who take the code for

their guide, are compelled in self-defense to cast about for some method by which they may hope for success in at least mitigating the evil, if not abating the nuisance entirely, both in the interests of humanity and their own.

The condition is "*sui generis*." There is no other place like this. And if we keep within the letter and spirit of the code, we see ourselves daily robbed, to be at last driven out of the field to give place to *other unfortunate ethical men* tempted by the apparently fine prospect, or to be succeeded by the vampires who are already so numerous here. We succeeded in getting passed, by the last Legislature, a law providing for the revocation of license for certain offenses, among which are the subsidizing hotels, and the employment of drummers. The constitutionality of this law is still to be tested; but if it stands, it is very difficult to get cases properly proved up before the medical board which has the jurisdiction, because of the fact that the witnesses—invalid visitors—who are generally desirous of avoiding the notoriety and detention consequent on a summons to court, to say nothing of the possible delay involved—generally prefer to pocket their wrath and lose their money rather than expose themselves to further vexation and the threats of these ropers, who hesitate at nothing.

At one time we circulated a poster on the incoming trains, at considerable expense, but without success, for reasons which would occupy too much space to detail, but which will be given in future if desired.

We cannot fight these men through the press without laying ourselves liable to the charge of advertising ourselves, and we don't know what to do.

Is it possible to put these matters before the profession, with the view and purpose of eliciting discussion? and perhaps some legislation at the next meeting of the American Medical Association, which would allow us to show through the press, or a paper of our own, the actually existing condition, thereby not only sustaining legitimate medicine, but keeping large numbers of invalids out of the hands of irresponsible men.

Did it not occupy too much space, I might add to the foregoing the fact that we have here an organized and recognized medical society; that there are quite a number of doctors here who have heretofore put themselves outside the pale, but who have quit the objectionable methods and desire to be recognized, and as to whom there exists some difference of opinion among members of the Society, arising from the very peculiar condition here (as I said *sui generis*); that the irregulars largely outnumber the regulars, being at present *about* as 16 or 18 to 35 or 45, the figures constantly changing.

A very amusing and interesting article might be written by one disposed to give facts as to the *methods* of these bunko men, and one which would also contain much pathos.

To day I met a man who failed to get a license from the local board, inquiring about an office. As I suppose, he has been to some of the "back counties," where he found an examining board less uncompromising. If I'm correct, this shows the inadequacy of existing law to protect the people and the profession.

Very respectfully, JOHN H. GAINES, M.D.

Case of Supernumerary Mamma.

To the Editor:—The subject of this article is one of some interest; and especially so in this particular case, on account of the size, and as well as the fact, that this mamma, or milk tumor, did not develop until the fifth gestation; and there was no sign of it before that time, so the patient states.

We find quite a number of cases of supernumerary mammæ on record, but none with a history like this so far as I know. Bruce has examined 4,000 persons and finds the deformity to be 1.54 per cent., and he says the axillary prolongations are not infrequent and may be mistaken for lymphatic glands; also states the left side is the most common locality of these deformities.

Evy Williams, col., age 39. Married; had six children. Health good. Three years ago, she was delivered of a child and at that time noticed a lump under the left arm pit, which was soft, movable, and not painful or tender on pressure or sore, as she states.

One month after her delivery she noticed this lump was increasing in size, and it reached the size of a hen egg, and remained so for two years, which was the length of time she nursed the child. After this it seemed to disappear until her next delivery, or three weeks before her confinement, it was about the size of a hen's egg, and continued to grow and was somewhat painful.

The child is now two months old, and you can see in this photo. the size of this extra mamma. You can also see it has no nipple and there is no discharge of milk; but it is somewhat soft and full of milk. I have compared the secretion from this tumor to the milk from the breast, and it is identical, the fat globules are easily made out with microscope. I have made two examinations of this under the microscope. L. G. HARDMAN.

Harmony Grave, Ga., Nov. 9, 1891.

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SATURDAY, NOVEMBER 21, 1891.

ETIOLOGY.

In determining the etiology of a disease, it is particularly important that all the causative factors should be considered. It is not sufficient to assign to one factor an overweening importance, and call it the cause. Let it be admitted that tuberculosis cannot exist without the bacillus tuberculosis, nevertheless, it is only one factor in the etiology of this disease. If this latter statement were not true, this omnipresent bacillus would soon play sad havoc with the human race. These statements are trite, but we submit that the truth which they embody is frequently overlooked, in this age of bacteriological activity. In the investigation of the etiology of a specific disease, it is much easier to determine with accuracy the particular microörganism which may be concerned in its production, than to determine the other factors involved. There is something brilliant about discovering and naming a bacillus; it is accurate and therefore pleasing to the mind, and it is not surprising that a relatively greater importance is accorded to this factor, than to those which are less well established. However, it must be admitted that comprehensiveness here is necessary; nothing less can be admitted as satisfying scientific accuracy. If the natural history of a microörganism could be so thoroughly studied that all the factors favoring its development should be known, and all the factors retarding its development should likewise be known, and means existed whereby the presence or absence of these factors in the human body could with certainty be determined, then, theoretically at least, the complete etiology of the disease determined by this microörganism would be known. But this ideal solution of the problem is far in the future; if, indeed, it ever be realized.

For the present, at least, we must be content with the light which can be thrown on the subject by the clinic, and it is surprising as well as gratifying, to see how well clinicians have done their work, and much information, often of a curious nature, has been obtained from this source.

The germ of scarlatina has as yet escaped the researches of the bacteriologists, but whatever may hereafter be shown to be the size and shape of this germ, whatever be its reactions with stains, or its peculiarities of growth, or its action upon various food-stuffs, clinicians know that it has a strong hold on life, and finds a favorable nidus in clothing, furniture, toys, and wall-paper, and many other things. They also know that it has a peculiar predilection for early life — so much so that nearly half the cases are found between 1 and 4 years of age. Long before the discovery of the KOCH-EBERTH bacillus, clinicians knew that the stools of typhoid patients contained the poison of the disease, and that drinking-water contaminated with these stools was the most common means of transmitting the disease. And this information is much more valuable to-day than any which has been furnished by the more exact knowledge of the bacillus, particularly since the means of recognizing the germ have been called in question.

It is useless to multiply instances showing the remarkable accuracy and wide extent of the additions to etiology which clinical research has made. The field for clinical work in etiology has by no means been exhausted. Much remains to be done. The method, however, is a slow one, as opportunities must be waited for, and when they come their significance must be at once recognized, or the chance is lost. This is very different from laboratory work, where a definite series of experiments is planned, at once carried out, and the results used to modify the conditions of subsequent experiments. Such

work as this is to a large extent mechanical, and we are sorry to say that many of its advocates, dazzled by the rapid acquisition of knowledge by its methods, have put themselves in a position of assumed superiority, and regard the clinician with mingled pity and contempt. It should never be forgotten, however, that all laboratory results must ultimately be tried for their sufficiency and comprehensiveness, by the clinical test.

Certain of the work in etiology which can best be done by the clinician, is work which can only be done in small communities. To trace the origin of a case of infectious disease with certainty, it must be possible to trace it to a single source, and to exclude positively all other possible sources. Such conditions are never found in large cities, but occasionally may be met in small communities, and it is the opportunity as well as the duty of the medical men who live in small communities, to watch for these cases, observe closely, trace carefully, and report for the benefit of the profession. From the nature of the subject, while a single report is valuable, a multitude of such reports, whether from the same or different sources, has a much greater value, and no one should hesitate to assist in the multiplication of such facts. In a hamlet of two or three hundred people, it is possible to know exactly whether an infectious disease exists or not. When the first case of infectious disease breaks out in such a community, it is usually easy to find the particular individual who has been the means of transmitting the poison. Then should be noted all the circumstances concerning such transmission. Over how great a distance was the poison conveyed; how did the transmitter of the disease travel; was travel for miles in an open wagon insufficient to dissipate the poison; how long was the individual exposed to the first case, and in what sort of contact with him was the one who subsequently developed the disease; what was the stage of the disease when the carrier got the poison from it. This last item is of particular importance. To this day it is not known with certainty whether or not scarlet fever can be transmitted from a patient in its very earliest stages, and yet every physician wishes sincerely that he knew.

It is not our object to review with any completeness the etiological factors which may be established by clinical observation, but rather to plead for the recognition of a broader and more comprehensive etiology than is the custom to-day; to emphasize the value and importance of clinical research in solving the problems of etiology; to show that some of these problems can only be solved by the medical men in small communities; and to enlist the services of men so situated in making observations of this character. We shall be pleased to publish any communications from our readers on this line of work, which shall show that they have carefully traced a case to its origin, and have excluded possible sources of error.

DIPHTHERIA.

This acute, infectious disease is quite prevalent in nearly all centers of population; according to its nature, attacking the children in some families and in some districts with fatal malignancy, and in others showing itself only in the mildest form of the disease. The general prevalence of diphtheria very naturally furnishes a most interesting theme for discussion at medical society meetings.

The KLEBS-LOEFLER bacillus is believed to be the active agent in propagating the disease; also, that the first manifestation is local, and that the immediate absorption of the poisonous chemical products which are developed in the original nidus are productive of the well-known constitutional symptoms so frequently found in a sub-normal temperature, feeble circulation, nervous exhaustion and malaise.

It is in the characteristic exudative membrane formed in the throat, nostrils and trachea that the bacillus is found, while the accompanying œdema and swelling of the parts in this locality at once threatens the life of the patient. The option of the operation of tracheotomy or the insertion of one of O'DWYERS' laryngeal tubes is frequently presented, the latter being, by all odds, the one most generally selected. The physician who inserts a tube should be prepared to perform tracheotomy, as a condition demanding the one is very close to the border line of the other.

From the first onset of the disease until complete convalescence is established, rest in a recumbent posture should be insisted upon. Simple and easily digested nutrients should be given every two or three hours, only limiting the

amount of nutritious food ingested by the capacity of the stomach for its assimilation and digestion.

Alcoholic stimulants are called for to the extent of tolerance; heroic doses are necessary to counteract the depressing effects of the poison of the disease.

A topical application to the affected part of a solution of one grain of bichloride of mercury, dissolved in four ounces of per oxide of hydrogen, as first recommended by Dr. Waxham, of this city, is a most effectual remedy.

In this connection, attention is directed to the easy and complete solubility of bichloride of mercury in glycerine, after which dilution to any extent may be conveniently made.

The acute symptoms of an attack of diphtheria being tided over, the avoidance of disastrous sequelæ may often be accomplished by a seemingly long continuance of the patient in a restful, recumbent posture, and a keeping up of the stimulants and extra diet.

From the very first indication of the presence of the disease, the patient should be as thoroughly isolated as possible; upon the perfection of this isolation or quarantine of the patient depends the ability to control the spread of the disease, and no matter how many cases a physician may have at one time, his efforts at establishing a complete quarantine of each one should never flag.

All expectoration and discharges from the throat, nose and mouth should be received upon paper napkins or pieces of tissue paper, and immediately burned. The soft Japanese paper napkins, which are so common and easily obtained, answer an admirable purpose as handkerchiefs for the sick of diphtheria or other infectious disease. Being inexpensive, after using they should be immediately burned.

Asepsis and antisepsis in the treatment of infectious diseases are just as important to the physician as to the surgeon in capital operations.

TREATMENT OF THE INSANE IN GENERAL HOSPITALS.

As matters stand at present, there are two crying evils, if not more, in the provision for the care and treatment of the insane in nearly all parts of this country. One is the deficiency of knowledge on the part of gencral practitioners, the other, deficiency of accommodations in the special hospitals provided for this class of invalids. It scarcely need be said that, in most of the medical schools of this country, opportunities for the study of insanity are either non-existent, or of the most meagre sort. Where any attempt is made at systematic instruction on this subject, it is usually by didactic lectures, without any clinical illustration, and it is safe to say that a large majority of graduates of our medical colleges have as good as no acquaintance with insanity, and only the most vague and indefinite ideas in regard to its treatment. As a rule, they are sensible of their deficiencies in this direction, and are apt to advise, in cases that do not show a tendency to pretty prompt recovery, that the patient should be sent to a hospital, but this is only a partial mitigation of the evil. The decision whether or not a patient shall be removed from his home and friends, and deprived of his liberty, is one that calls for a great deal of discrimination. We do not at all share the belief that the confinement of sane persons in asylums for the insane, either wilfully or through ignorance, is a common thing; on the contrary, we believe that the mistake is much more often made of allowing persons to go at large who ought to be restrained, both in their own interest and that of others. It does, however, sometimes happen that persons who are unquestionably insane are subjected to the odium and distress involved in an official declaration of insanity, when under judicious treatment they might have recovered equally well at home, and in many cases the chances of recovery are imperilled by injudicious treatment.

On the other hand, when it is decided to be best that the patient should be placed in a hospital, there is often most unfortunate delay owing to the overcrowding of these institutions. In almost every State in the Union, the accommodations for the insane fall far short of what is needed; the hospitals become clogged with an accumulation of chronic cases, and, as a consequence, the admission of acute cases is delayed till the time is past in which there is hope of recovery.

Both of these evils might be partially remedied by a measure which has been proposed in various quarters, and which has recently been strong-

ly urged by DR. J. BATTY TUKE, in an address delivered before the Royal Academy of Medicine of Ireland, and published in the *British Medical Journal*, the establishment of small wards for acute cases of insanity in connection with general hospitals. This would give medical students an opportunity for clinical instruction and experience which would be of great value to them and their patients in practice, and would increase the opportunities for prompt hospital treatment in cases that require it. If the policy were adhered to of not retaining chronic and, presumably, incurable patients, the stagnation of the population and crowding out of acute by chronic cases might be avoided, and it is probable that many persons would be more ready to send their friends to a general hospital than to an asylum for the insane.

The principal objection to such a plan is the disturbances which would be made by the patients. As DR. TUKE says, however, this objection applies with greater force to wards for delirium tremens, which is, in fact, one of the most objectionable forms of insanity in this respect. Such provision for the insane would not at all interfere with the work of the special hospitals, and it could hardly fail to aid in establishing a better understanding between the profession at large and the members of what has hitherto been, unfortunately for all concerned, the most isolated of medical specialties.

HOT SPRINGS, ARK.

We take pleasure in directing the attention of our readers to a letter in this issue of THE JOURNAL from DR. JOHN H. GAINES, president of the Hot Springs Medical Society. As he pertinently says, the professional conditions existing in that locality are anomalous. If every practitioner of regular medicine who has a patient who purposes going to Hot Springs, will give his patient a letter of commendation to some one of reputability in that place, the difficulty will be largely solved.

There are many thousand practitioners who do not know the names of the reputable practitioners at Hot Springs, and for that reason, DR. JELKS, of that place, has his professional card inserted on one of our advertising pages. Look at it; it is only a plain, professional card, without puff or aught else, but the simple fact that it appears in that particular way in this journal is sufficient to endorse him as a reputable man, in good standing in our profession.

Patients going from one place to another, or even heads of families moving from one locality to another, may very properly, in fact, should, be given a letter of introduction and commendation to a reputable practitioner in the place of their destination. Such a course is a manifestation of interest in a patient and patron that is always commendable, and the practice should become as universal as possible.

MISCELLANY.

DR. HIRAM HAYDEN ATWATER, died at Burlington, Vt., aged sixty-three years, on August 19th. His father was a physician at Norfolk, N. J., but the son was educated at Burlington and at Woodstock Medical College, graduating in 1851. He first settled in Brooklyn, N. Y., but in 1861 removed permanently to Vermont. He was pension examiner for many years beginning in 1862. He was health officer of Burlington in 1867, and commissioner of lunacy for two years. Dr. Atwood had a special bent in the direction of obstetrics and was for many years the instructor in that branch in the University of Vermont. He was also one of the medical staff of the Mary Fletcher Hospital. He was the author of various contributions in the Vermont and other medical transactions and the *American Journal of Obstetrics*.

DR. WILLIAM COGSWELL, of Bradford, Mass., who died August 15, at the age of seventy-two years, was an ex-president of his State Medical Society, and the third one of that rank to go over to the majority during the present year,—Drs. Hosmer and Lyman preceding him by only a few weeks or month. His presidency occurred in 1876. He was a member of the Governor's council in the year following, and was twice appointed Medical Examiner for the Essex district, No. 4. He was an occasional contributor to the journals of articles on medico-legal subjects.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from November 7, 1891, to November 13, 1891.

Capt. William R. Hall, Asst. Surgeon U. S. A., relieved from Ft. Schuyler, N. Y., and assigned to duty at Angel Island, Cal.

Asst. Surgeon Paul Clendenin, to be Asst. Surgeon with the rank of Captain, after five years' service, in accordance with the Act of June 23, 1874. November 5, 1891.

Official List of Changes in the Medical Corps of the U. S. Navy, for the Week Ending November 14, 1891.

P. A. Surgeon J. D. Gatewood, detached from the U. S. S. "Despatch," and granted two months' leave of absence.

Official List of Changes of Stations and Duties of Medical Officers of the U. S. Marine-Hospital Service, for the Two Weeks Ending November 7, 1891.

Surgeon John Vansant, to proceed to New Orleans, La., as inspector. November 7, 1891.

Surgeon R. P. Murray, to rejoin station at Key West, Fla. October 30, 1891.

P. A. Surgeon C. T. Peckham, to proceed to Memphis, Tenn., as inspector. November 7, 1891.

Asst. Surgeon G. M. Guiteras, to assume command of Gulf Quarantine Station. October 30, 1891.

Asst. Surgeon C. E. Decker, assigned to duty at San Francisco, Cal. October 30, 1891.

APPOINTMENT.

Decker, Charles E., of Michigan, commissioned as Asst. Surgeon by the President. October 27, 1891.